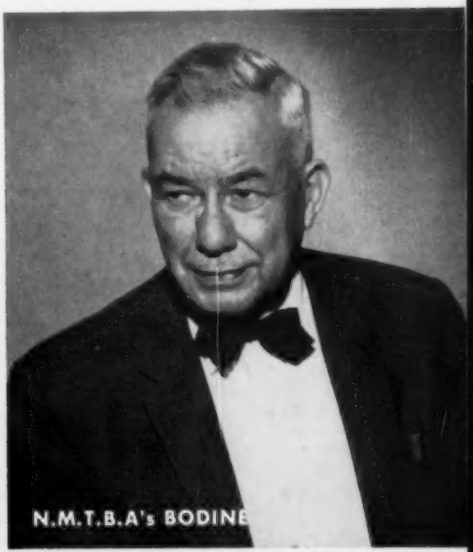
The IRON AGE

August 14, 1958 A Chilton Publication The National Metalworking Weekly

ORD's DAUM

DEFENSE DEPT.'s WILLIAMS



N.M.T.B.A.'s BODINE

G.E.'s WILES

CROSS CO.'s RALPH CROSS

ALLIS-CHALMERS' LARSON

Machine Tool Experts: Are Building Blocks Practical? P. 77

ARISTOLOY

No guesswork here. Soaking cycles and temperatures are accurately recorded from this room. Each pit is individually controlled, and soaking of different steels can be varied to meet your requirements.

CONTROLLED SOAKING Produces Controlled Quality Steels

Controlled heating before rolling aids in producing controlled quality steels. Copperweld's new battery of soaking pits provides precise regulation of temperature and time during this important operation. The benefit to customers — controlled quality and improved Aristoloy products.

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COMPLETE INFORMATION about Aristoloy electric furnace carbon, alloy, and stainless products, available as blooms, billets, and bars.

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AMERICAN STEEL WAREHOUSE ASS'N

The little booklet on alloy steels that grew into a textbook . . .

Quick Facts about Alloy Steels appeared for the first time in 1956, as a collection of reprints of a series of Bethlehem advertisements in metalworking magazines.

The small booklet was well received, and we kept adding more of the informative advertisements as we reprinted it to keep up with demand. Today, it has grown to 40-page size, and is in its Third Edition. More than 20,000 booklets have been distributed at the written request of executives, engineers, designers, and others, who have found *Quick Facts* to be an authoritative small textbook on the fundamentals of alloy steels. Here's what a U. S. Navy engineer wrote:

"*Quick Facts* is a small textbook of information—a booklet that has been needed for a long time. One of my associates and I had a metallurgical problem involving alloy steels. We just didn't have the information. A friend showed me a copy of your booklet *Quick Facts,* and there on one page, under the subject 'Determining Depth Hardness,' was just what we wanted to know!"

The current booklet contains reprints of the complete series of advertisements, on such subjects as, "What is an Alloy Steel?" "Effects of Elements," "Grain Size," "Heat-treatment," "Quenching Media," and others. It's written in concise, layman's language, from data compiled by Bethlehem's metallurgical engineers.

Would you like a copy of the *Quick Facts* booklet? Just fill out and send in the coupon.

PUBLICATIONS DEPARTMENT, ROOM 1030
BETHLEHEM STEEL COMPANY
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Please send me your "Quick Facts about Alloy Steels" booklet.

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Philadelphia 39, Pa., SH 8-2000

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THE IRON AGE, published every Thursday by CHILTON COMPANY, Chestnut & 56th Sts., Philadelphia 39, Pa. Entered as second class matter, Nov. 3, 1932, at the Post Office at Philadelphia under the Act of March 3, 1879. Price to the metal-working industries only or to people actively engaged therein, $5 for 1 year, $8 for 2 years in the United States, its territories and Canada. All others $15 for 1 year; other Western Hemisphere countries, $25; other Foreign Countries, $35 per year. Single Copies 50¢. Annual Review Issue $2.00. Cable: "Ironage," Philadelphia.

The IRON AGE

August 14, 1958—Vol. 182, No. 7

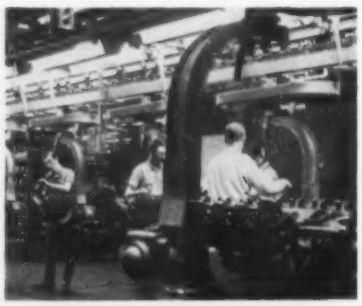
Digest of the Week in

*Starred items are digested at right.

NEWS ARTICLES

IS THE DIP OVER?

Metalworking Recoup—An IRON AGE survey shows there are both good and bad spots in the



market. Uncertain outlook for capital spending dampens hope for more than a gradual recovery. P. 37

SUCCESS STORY

Why U. S. Steel Does so Well—Here's the story behind the growing efficiency and improving earnings position of U. S. Steel. It's the climax of a ten-year drive. P. 40

COAL MINE EQUIPMENT

Sales Will Grow—Coal producers spent a record $750 million for capital goods last year. But with coal sales and use growing they're expected to stepup buying of mining and handling equipment during 1959-60. P. 42

HIGHER TAXES?

Senator Asks for Them — Sen. Prescott Bush says the U. S. faces a cumulative deficit of $20 billion in the next three years unless the

Metalworking

BUILDING BLOCK OPINIONS: Men on the cover are just a few who contributed to this week's feature on building block tools. They are: (top, l to r) Ford's Henry Daum, Defense Dept.'s John Williams, NMTBA's A. V. Bodine, (bottom, l to r) General Electric's A. E. Wiles, Cross Co.'s Ralph Cross, Allis Chalmer's Henry Larsen. P. 77

Government has the courage to sharply increase taxes. P. 57

IMPERIAL'S NEW PLANT

Production Begins — Imperial Div., Chrysler Corp., is producing cars in its own plant for the first time since 1926. Its part of Chrysler's plans to set the Imperial apart as a style leader. P. 52

FEATURE ARTICLES

SCALE-FREE BILLETS

New Furnace Does It — While scale-free furnace heating is well established in theory, it's the practice that counts. There's no room for scale when hot forging calls for tolerances of 0.012 in. Here is a burning system that does the job at production rates. P. 82

PREFORMING BLANKS

Cuts Machining Costs—Do you machine multi-diameter parts from steel bar stock? Here's a new way to cut the cost of making stepped shafts and other symmetrical shapes by using close-tolerance, die-form blanks. Savings in materials can average about 33 pct. P. 84

BILLET HEATING

Molten Glass Method—A new furnace which heats billets rapidly with molten glass has a 1000-lb per hour capacity. It uses ordinary broken glass. Billets immersed in a molten pool heat up uniformly in minutes rather than hours. Fuel savings are a bonus. P. 87

POWDERED PRODUCTS

Easier Handling — Disposable containers can be costly for bulk materials used in quantity. One company finds that reusable sealed containers save time, labor, and space in handling its raw materials. Pneumatic seals work well. P. 88

MISSILE TESTING

In an Altitude Chamber — An altitude test chamber for missile components is proving invaluable at Janitrol Aircraft's new Columbus, O. plant. Tests already run have simulated conditions at better than 22.7 miles up. P. 90

MARKETS & PRICES

VENEZUELAN MARKET

Growing Fast—Last year, Venezuela became U. S. industry's biggest customer in Latin America. Its U. S. imports passed the $1 billion mark. Metal products, machinery, vehicles led the list. P. 44

COMMERCIAL JETS

Keeping Planemakers Busy—Fate of the aircraft industry isn't as bleak as appeared when the missiles boom began. New jetliner orders are boosting backlogs. P. 59

NUMERICAL CONTROLS

Buying Tips—Numerically controlled machines are becoming a growing factor in metalworking profits. If you are thinking of trying them, here are some important things to keep in mind. P. 61

STEEL MARKET PICKUP

Price Rise Fails to Slow Pickup—The steel market continues to show improvement despite the price boost. August outlook is good. P. 117

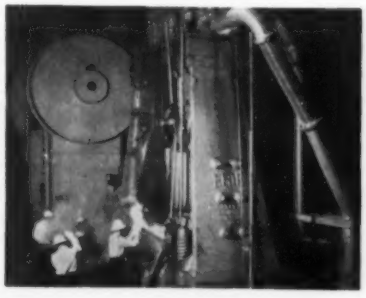
BUYING POLICY

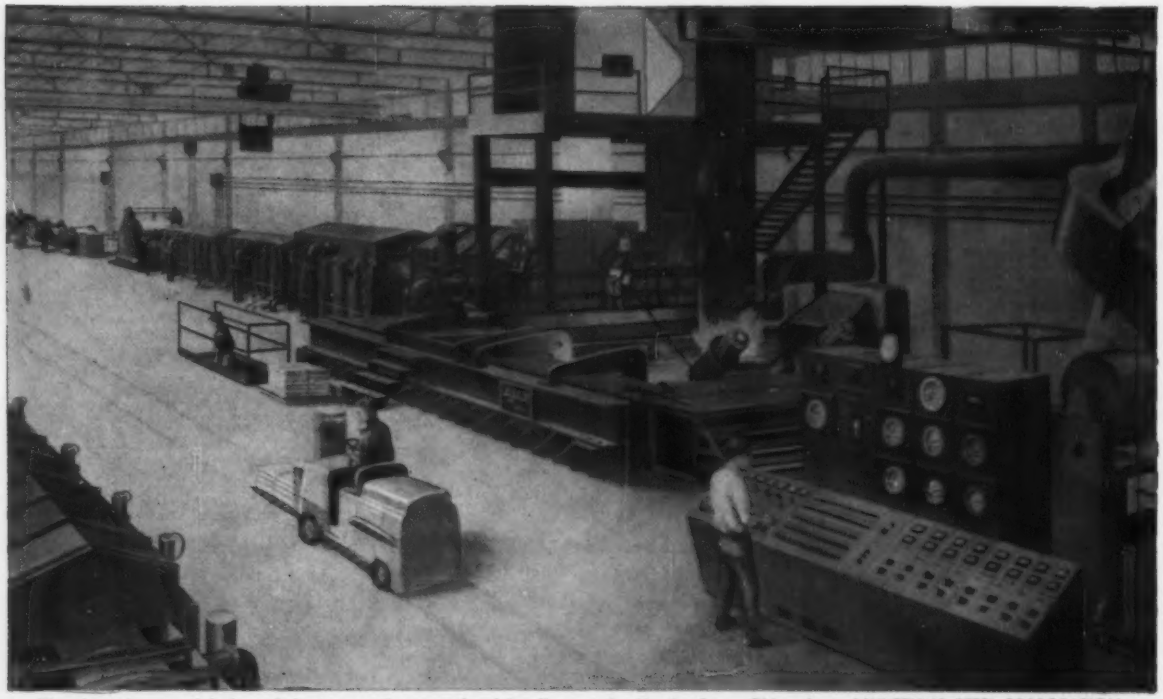
How Kellogg Does It—There's a balanced approach to purchasing at M. W. Kellogg Co. Most supplies are bought for job use but reserve stocks are still kept in case of emergencies. P. 118

NEXT WEEK

FORGING WISDOM

For All Concerned—Next week's Special Report to Management will bring into focus many of the key reasons for using carbon and low alloy steel forgings. It will interest the purchasing agent, production man, metallurgist, and others.





The above is a partial view of the two continuous galvanizing lines at the Martins Ferry, Ohio, plant of WHEELING STEEL CORPORATION. Both lines use AJAX 60 cycle induction galvanizing furnaces and zinc premelt furnaces. The main galvanizing furnace shown holds 175 tons of zinc, is rated 2000 kw, and produces over 40 tons per hour at speeds in excess of 300 feet per minute. These continuous galvanizing lines produce WHEELING's patented SOFTITE sheet.

60 Cycle induction galvanizing

has progressed from small beginnings a few years ago to a

present capacity of well over **one million tons per year.**

Here is an entirely new approach to an old art:

- A refractory lined hearth in place of the iron kettle eliminates kettle replacement and iron pickup, drastically reduces dross formation.
- Temperature control is precise, lag free, holds the melt at ideal galvanizing temperature at all times.
- Gentle electromagnetic circulation facilitates alloy additions, keeps alloy uniform throughout the melt.
- Clean and cool working conditions for hand dipping or continuous operations.

All these factors help to produce a galvanized coating of consistent superior quality and to attain high production at lowest unit costs.

MAY WE HAVE YOUR INQUIRY?

AJAX USA

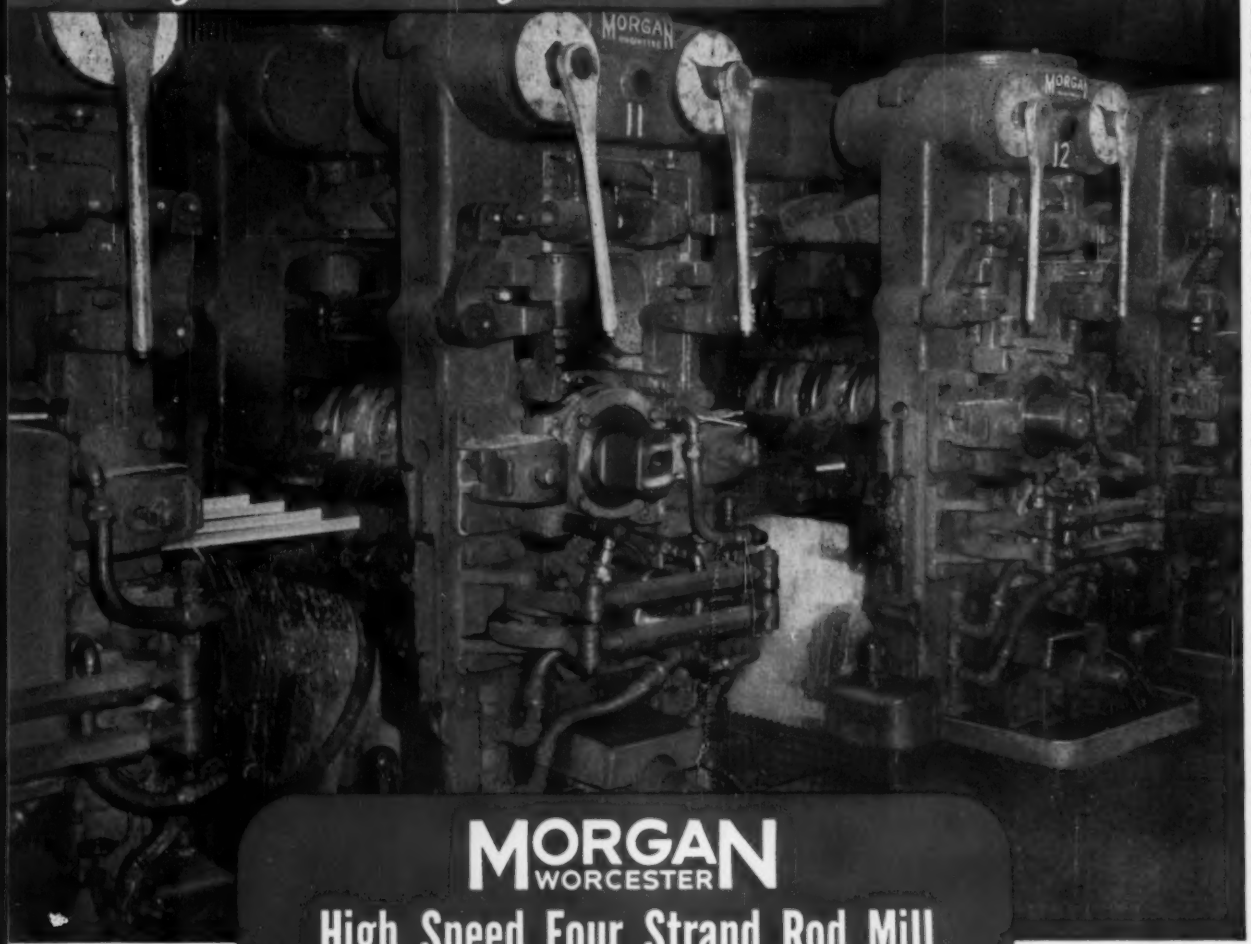
ENGINEERING CORPORATION

TRENTON 7, NEW JERSEY

60 CYCLE INDUCTION MELTING

Associated Companies: Ajax Electrothermic Corporation Ajax Electric Company

Morgan Quality in Action



MORGAN WORCESTER

High Speed Four Strand Rod Mill

Cuyahoga Works, American Steel and Wire Division

UNITED STATES STEEL CORPORATION

Morgan Mills are known to steel men throughout the world for their sound design and accurate manufacture . . . an enviable reputation which has assured mill users of efficient and trouble-free operation. Morgan Mills have kept pace with the ever-increasing demands for high output and greater accuracy of product.

MORGAN CONSTRUCTION CO.

WORCESTER, MASSACHUSETTS

ROLLING MILLS MORGOIL BEARINGS GAS PRODUCERS
WIRE MILLS EJECTORS REGENERATIVE FURNACE CONTROL

RM4-71

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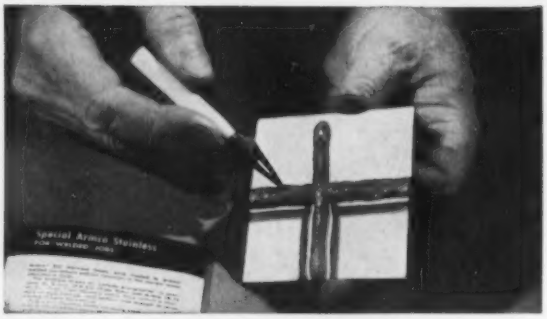
When You Need Service, All Hands "Turn to"

...at the Steel Service Centers of Armco Stainless Distributors

ALL HANDS await your call. Orders are processed efficiently, quickly. Supply or technical questions answered promptly. That's why one of your most valuable aids can be the Armco Stainless Steel Distributor nearest your plant.

CAREFUL HANDS select Armco Stainless bar, wire, sheet, or strip in the exact grade and size you require. Equal care goes into preparing and shipping your order—even to "job tailoring" stainless to your specifications.

HELPING HANDS of mill-trained distributor salesmen and metallurgists hold answers to many problems of stainless selection, design, and fabrication. Call on them. They're always ready to consult with you or your engineers.



FOR THE NAME OF YOUR NEAREST ARMCO STAINLESS DISTRIBUTOR, MAIL THE COUPON.

New steels are born at Armco

ARMCO STEEL CORPORATION, 2728 Curtis St., Middletown, Ohio

Who is my nearest Distributor of Armco Stainless ☐ sheet and strip ☐ bar and wire?

NAME _____ TITLE _____

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STREET _____

CITY _____ ZONE _____ STATE _____

ARMCO STEEL

Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

The Red Trade Bauble More a Gimmick Than Real

The air is being rent these days by the "let's trade with the Reds" song. Also we hear about how much we have lost by not trading with the Reds.

This is an old record which is being re-played. Soon we will hear again that to trade with the Reds will be good for peace. This argument is so silly it hardly needs answering. But since we fall for such silly things we best answer it.

Trade and peace have nothing to do with each other. All nations which have gone to war with each other have traded right up to the first shot or invasion. There is nothing to suggest this will ever change.

We hear the argument that because we did or didn't do this or that Russia built her own industry. She would have done so anyway. We do know that it is sad to recall that when a nation goes to war with us that it often uses our own machinery, scrap, steel, or equipment to fight us with—if we sent it to her before. That is something we won't forget while we listen to the Red trade song.

Students of Communism know that the Red nations do not want to trade with the free world except to get the things they need urgently at the moment. When they get them and are later in a position to make their own items the trade is allowed to die a slow death.

The main aim of Communist countries is to expand trade among themselves. At present Red China needs many things Russia can't afford to give her. So what would be better than to have the free nations help build up Red China so she can tear them down later?

Neither Red China nor Russia are good customers. The pay is not prompt; it is not always forthcoming, and often glowing sales pitches turn out to be so much Red chatter. The sales usually involve barter, argument, late deliveries, and disappointments, and are not long-term affairs.

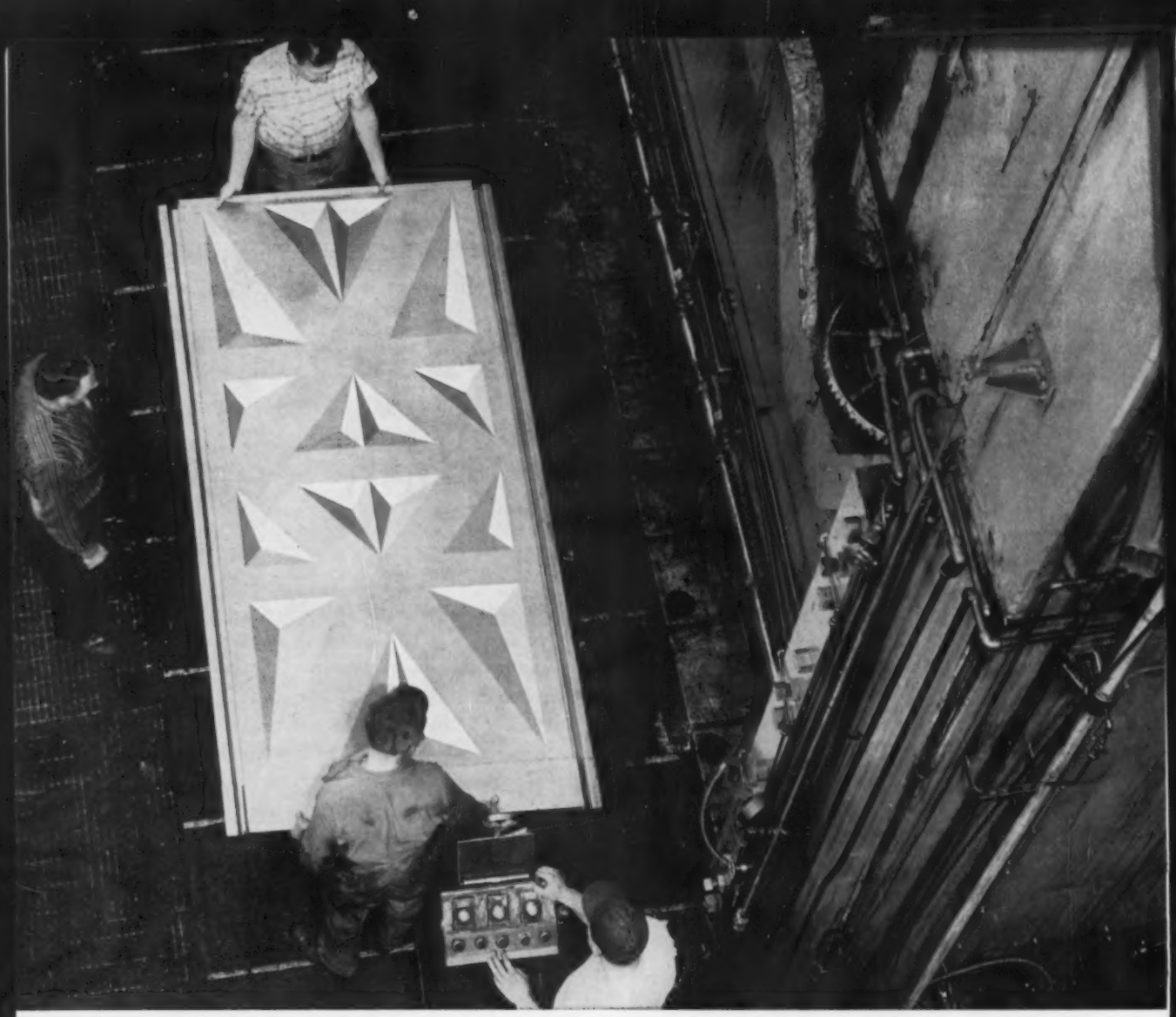
The United States should give more concern than she does to the plight of her allies when looking into the Red trade question; especially if she will not fill the gap. But that doesn't mean that Americans should open the door to trade with Red China or expand our small trade with Russia.

If trade meant understanding, if trade meant peace, if trade meant basic cooperation with free exchange of news and people then perhaps we should take a second look at "normal" trade with the Reds.

But as long as the Red trade talk is nothing but propaganda gimmicks or a short cut to strategic supplies, it should be ignored.

Tom Campbell

Editor-in-Chief



Here's where the big jobs get into shape

It takes a big press to stamp out a panel like this 4½ x 9 foot section of stainless steel curtain wall for a building exterior.

COMMERCIAL can and has accurately stamped thousands of curtain wall panels—aluminum, stainless steel, bronze, or steel, with any type of finish—for recently completed modern skyscrapers like the Socony-Mobil Building in New York City, the H. K. Porter Building in Pittsburgh, the Commercial Credit Building in Baltimore, and the Morton Salt Building in Chicago, among others.

Here's a full-time working combination—30 years of skill and experience in forming metals, specialized equipment which includes modern "more-hits-per-hour" 100-ton to 2000-ton presses, and integrated facilities for designing and producing tools and dies—which makes the "tough" stamping jobs routine.

COMMERCIAL produces medium to large custom stampings involving sheets starting at 20 gauge or plates up to ¾-inch thick, diameters from 6 inches to 84 inches, and rectangular shapes 6 inches to 7 feet in width and 6 inches to 15 feet in length. And, it maintains accurate dimensions, preserves original finishes, and keeps unit costs down.

We'd like to prove it to you the very next time you're in the market for a medium to large custom stamping. Our engineers will be glad to work closely with you to help solve your stamping problem. Write to Commercial Shearing & Stamping Co., Dept. K-33, Youngstown 1, Ohio.

Specialists in the shape of things to come
CUSTOM STAMPING • UPSET FORGING • ROTOFORMING

COMMERCIAL
shearing & stamping

Industry Taxes

Sir—We noted with interest your article in the July 3 issue entitled "Industry Tax Suffers a Setback."

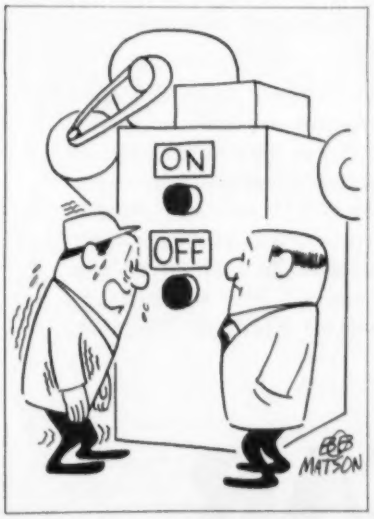
Here in Bristol, Conn., our industries and city government have been experiencing difficulties over assessment figures and, while our problem is not the same as in Baltimore, it is serious enough to cause the same results.—J. Dickert Donovan, Staff Asst., Chamber of Commerce, Bristol, Conn.

Plastics Dollar

Sir—As a regular reader of your journal I shall be more than pleased if you will mail me a copy of the article "How to Get More for Your Plastics Dollar" which appeared in the June 26 issue.

Wishing your publication continued growth and success.—R. J. Gill, Sheffield, England.

Sir—"How to Get More for Your Plastics Dollar," in the June 26 issue of IRON AGE was very interesting, and an excellent condensed presentation of the subject matter. If reprint copies of the article are still available, I should very much appreciate receiving a copy for my use.—A. M. Krill, Head, Mechanics Div., Univ. of Denver, Denver, Colo.



"I think that's what's getting me down, Sir. All day long decisions, decisions."

Sir—This article was so interesting and comprehensive I would very much like to have a copy for my personal file. — M. J. Jones, Secy., Ellison Machinery Co., Los Angeles, Calif.

Thanks for Salute

Sir—This will acknowledge with thanks my receipt of the extra copies of The IRON AGE Salute in the June 5 issue.

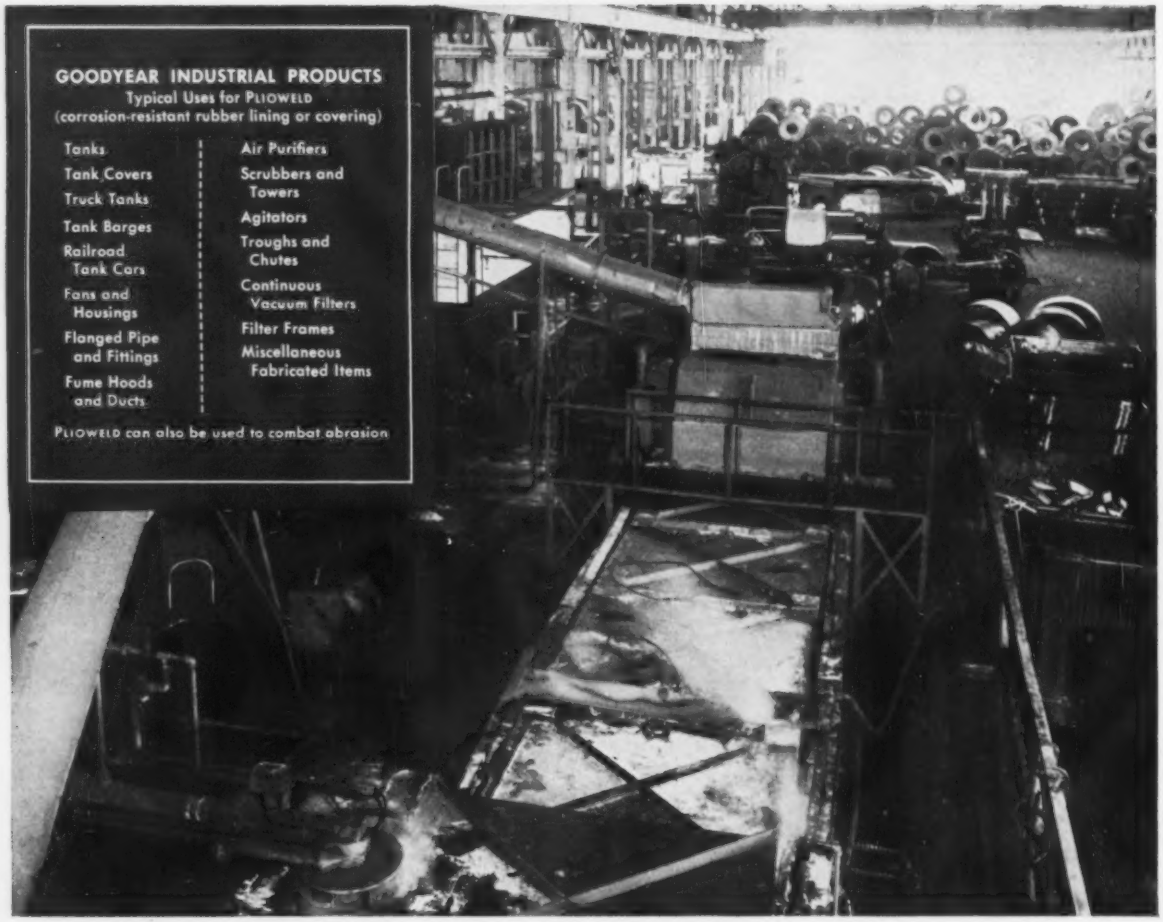
So many letters have come in from my friends throughout the country that I am prompted to send you this note of appreciation for writing the salute about me which appeared in that issue. Again, many thanks. — W. N. Howley, Lansdowne Steel & Iron Co., Morton, Pa.

Missing State

Sir—While reading your July 24 story (Right-to-Work Gains Momentum) I noticed a mistake. In the map showing states having right-to-work laws you overlooked mine—Indiana.

Many workers are for these measures and more will be by November. Indiana workers are proud of our law. — Name Withheld, Fort Wayne, Ind.

▪ Sorry for the omission. Somewhere along the line communication between our art and editorial departments broke down. It was clearly mentioned in the story, however, that Indiana was one of the states with a right-to-work law.—Ed.



These rubber-lined tanks pickle with an underwater flame

A UNIQUE new way to heat pickling tanks—with an open flame actually submerged in the pickling solution itself—promised important new economies at this Midwestern steel plant. But they were solidly sold on rubber-lined tank advantages. And in such tanks, the new system had been tried at other plants—and had failed.

Then they called in the G.T.M.—Goodyear Technical Man—and gave him the problem. After careful study, he and his colleagues designed and engineered tanks that make the most moneysaving use of underwater firing. Key to their success was the use of PLIOWELD Tank Linings—especially compounded to stand up under the concentrated acids and high temperatures.

In just over a year, *these tanks processed 1,000,000 tons of steel—are still in perfect condition—have brought the company important savings.* And that's just one more example of the way the G.T.M. provides effective answers to vital production problems—with extra-quality products. To cash in on this unique ability, contact him by writing: Goodyear, Industrial Products Division, Akron 16, Ohio.

PLIOWELD TANK LININGS by

GOODYEAR

THE GREATEST NAME IN RUBBER

Plioweld—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Anti-Recession Formula

A Springback Formula (see below) has been developed by the Associated Spring Corp. of Bristol, Conn.

It's designed to remind employees of the principles that lead to successful operation of a business. Carlyle F. Barnes, president of Associated Spring, explains the device this way: "Our formula starts with the recognition that a customer is all-important to us. Without him we can do nothing. We must work constantly at keeping costs down in order to be competitive.

"We must gear our operations to the volume we can get today—not what we hope it will be in six months or a year. In making decisions we must be sure to deal only with facts. Our judgment must be keen and accurate. We must develop complete understanding of what we are doing and of our programs.

"We must be sure that all of our people understand our aims and what we do. Communication—clear and definite—is another important element in the program. The implementing of all this takes a lot of effort on the part of every individual, and that effort requires follow-through. Finally, the key to success of the program is continued action."

100th Birthday

A few weeks ago Sweden celebrated the century anniversary of the country's initial production on an industrial basis of ingot steel made by the Bessemer method.

It was quite an event with the Swedish government issuing a special centenary stamp showing a Bessemer convertor in action. IRON AGE Editor-in-Chief Tom Campbell received a first day cover of the stamp from the Sandvik Steel Works Co. of Sandviken, Sweden.

The enclosed letter explained that G. F. Goransson, founder of Sandvik, pioneered in use of the process in Sweden. Now the Sandvik Works extend over a 400-acre area where about 6500 are employed. More than 60 pct of the company's production is sold for export through subsidiaries and agents in 74 countries.

Belated happy birthday wishes!

Associated Spring Corporation

Springback Formula

$$A_T \left(\Sigma C_E + C'_R + G_{TAV} + \Sigma F + J + U + C'' + \Sigma I_E + F_T\right) \rightarrow S_O$$

A_T = *ACTION TODAY!*

triggers

Σ *THE SUM OF*

C_E = CUSTOMER ~~SATISFACTION~~ ENTHUSIASM
Better Delivery Performance
Better Service—Plus

C'_R = COST REDUCTION
Every Dollar Counts
Continuous Effort

G_{TAV} = GEAR TO ATTAINED VOLUME
Today's Methods and Procedures determine Tomorrow's Performance

plus

Σ *THE SUM OF*

F = FACTS
Get the full picture
~~Assumption—Opinions~~
~~Rumors~~

J = JUDGMENT
Keen and Accurate

U = UNDERSTANDING
Complete Programs People } Why!

C'' = COMMUNICATION
Clear
Get across
Explain
Repeat?

plus

Σ *THE SUM OF*

I_E = INDIVIDUAL EFFORT

F_T = FOLLOW THROUGH

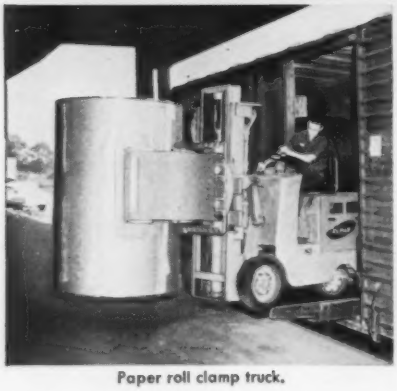
which yields

S_O = SUCCESSFUL OPERATION

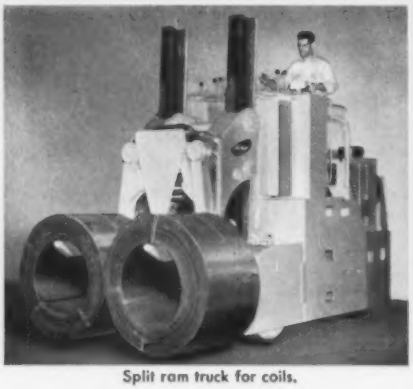
ELPAR®

ELECTRIC TRUCKS...

Scoop truck for bulk materials.



Paper roll clamp truck.



Split ram truck for coils.

NEW ELPAR electric cotton truck.

Designed to Tame Your Tough Handling Jobs

Put ELPAR trucks with attachments to work and keep your "hard-to-handle" materials flowing smoothly. There are ELPAR attachments for virtually every type of out-of-the-ordinary load. Most are readily interchangeable with forks to provide truly versatile performance.

ELPAR attachments need not be costly. In your case, all that may be required is some minor modification to the standard truck—yet the result could well be a major increase in handling efficiency.

Call in your local ELPAR man. A materials handling expert, he'll help you in proper truck-to-job application. And he'll explain to you why traditional ELPAR electric truck dependability is your assurance of *twice* as many years of dependable service as other power-types—with only *one-third* the operating and maintenance costs.

NEW LITERATURE
Send for New Attachments Brochure and "Gas vs. Electric Truck" Folder.

ELPAR®
ELECTRIC TRUCKS

THE ELWELL-PARKER ELECTRIC COMPANY
4297 St. Clair Avenue • Cleveland 3, Ohio

Twice the Life...1/3rd the Operating Costs

COMING EXHIBITS

Chemical Show—Sept. 9-12, International Amphitheater, Chicago. (National Chemical Exposition, 86 E. Randolph St., Chicago 1.)

Iron & Steel Show—Sept. 23-26, Cleveland Public Auditorium, Cleveland. (Association of Iron & Steel Engineers, 1010 Empire Bldg., Pittsburgh 22, Pa.)

Western Tool Show — Sept. 29-Oct. 3, Shrine Exposition Hall, Los Angeles. (American Society of Tool Engineers, 10700 Puritan Ave., Detroit 38.)

Packaging & Materials Handling Show—Oct. 14-16, Coliseum, Chicago. (SIPMHE, 327 LaSalle St., Chicago 4.)

Metal Show — Oct. 27-31, Public Auditorium, Cleveland. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

Plastics Show—Nov. 17-21, International Amphitheater, Chicago, (The Society of the Plastics Industry, Inc., 250 Park Ave., New York 17.)

MEETINGS

SEPTEMBER

National Petroleum Assn.—Annual meeting, Sept. 10-12, Hotel Traymore, Atlantic City, N. J. Society headquarters, Munsey Bldg., Rm. 958, Washington, D. C.

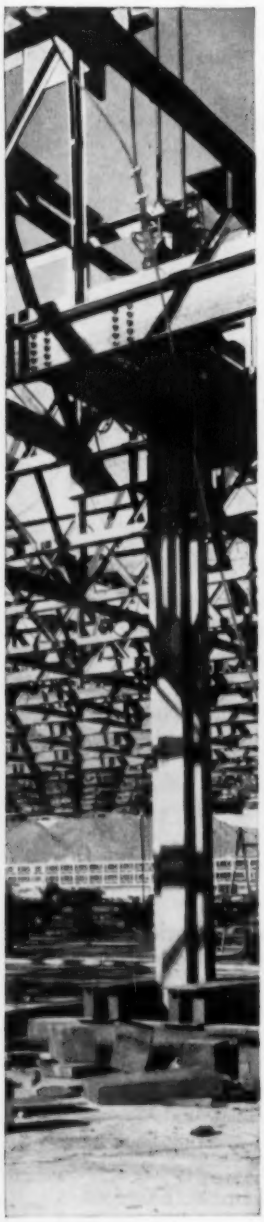
The Malleable Founders Society—Semi-annual meeting, Sept. 19, Hotel Cleveland, Cleveland. Society headquarters, 1800 Union Commerce Bldg., Cleveland 14.

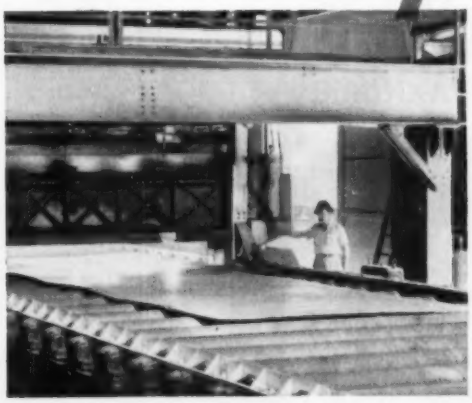
Steel Founders' Society of America—Fall meeting, Sept. 22-23, The Homestead, Hot Springs, Va. Society headquarters, 606 Terminal Tower, Cleveland 13.

The Material Handling Institute, Inc.—Joint industry fall meetings—Sept. 22-24, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, Suite 759, One Gateway Center, Pittsburgh 22.

(Continued on P. 16)

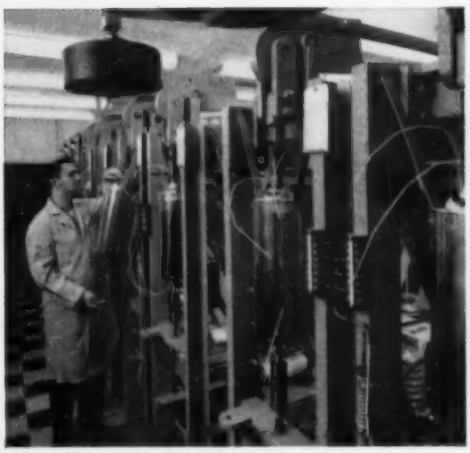
you get STEEL + PLUS





STEEL + PLUS IN ACTION: FACILITIES

To supply customers with the specialty products required for today's—and tomorrow's—critical applications, U. S. Steel equipped its Homestead Works with new facilities to heat-treat large plates of Stainless and USS "T-1"* Constructional Alloy Steel. These facilities have resulted in products having higher, more uniform mechanical properties and improved flatness, and have made them available in quantities to meet our customers' growing requirements for these special steels.



STEEL + PLUS IN ACTION: RESEARCH

U. S. Steel research teams conduct "creep" and "rupture" tests to determine how long it takes metal, at very high temperatures, to distort and break under a load. This type of information is vital, not only to develop better grades of steel, but to help designers select the best materials for equipment that has to function under extreme heat.

STEEL + PLUS IN ACTION: MARKETING ASSISTANCE

The tremendous selling power of national television promotes the products made by U. S. Steel customers. Here, during a "Steel Hour" commercial, Sheila Jackson and Jack Brand tell thousands of farm owners about the advantages of factory-built steel buildings for the farm. Result: more customers for our customers.

USS United States Steel

*TRADEMARK

EXHIBITS, MEETINGS

(Continued from P. 13)

Air Moving & Conditioning Assn., Inc.—Annual meeting, Sept. 22-25, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 2159 Guardian Bldg., Detroit 26.

Porcelain Enamel Institute — Annual meet, Sept. 25-27, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 1145 19th St., N. W., Washington, D. C.

The Electrochemical Society, Inc.—Semi-annual meeting, Sept. 28-30 and Oct. 1-2, Chateau Laurier, Ottawa, Canada. Society headquarters, 1860 Broadway, N. Y.

Pressed Metal Institute — Annual meeting, Sept. 28-Oct. 2, The Cloisters, Sea Island, Ga. Society headquarters, 3673 Lee Rd., Cleveland 20.

OCTOBER

National Assn. of Sheet Metal Distributors—Fall meeting, Oct. 5-8, Marlborough Blenheim Hotel, Atlantic City. Society headquarters, 1900 Arch St., Philadelphia.

Truck Body & Equipment Assn., Inc.—Annual convention and exhibit, Oct. 6-8, Ambassador Hotel, Atlantic City. Society headquarters, 1616 K St., N. W., Washington, D. C.

Gray Iron Founders' Society, Inc.—National annual meeting, Oct. 8-10, Sheraton-Park Hotel, Washington. Society headquarters, 930 National City-E 6th Bldg., Cleveland.

The Wire Assn.—Annual convention, Oct. 13-16, Chalfonte-Haddon Hall, Atlantic City. Society headquarters, 543 Main St., Stamford, Conn.

American Machine Tool Distributors' Assn.—Annual meeting, Oct. 15-17, Sheraton Plaza, Boston. Society headquarters, 1900 Arch St., Philadelphia.

Rail Steel Bar Assn.—Semi-annual meeting, Oct. 20-22, Blackstone Hotel, Chicago. Society headquarters, 38 S. Dearborn St., Chicago.

meet Jenny . . . the girl with the magic touch

HOW DO YOUR CLEANING COSTS STACK UP AGAINST JENNY'S ?

40-Ton Toggle Press	3 Hours
Automatic Screw Machine	5 Hours
Steel Mill Windows, per 30 panes	15 Minutes
Garage Floors, per 30 sq. ft.	10 Minutes
Machine Shop Floors, per 15 sq. ft.	15 Minutes
8-Ton Woodworking Machine	2 Hours
Overhead Crane Rail Girders, per 6 ft. section	15 Minutes
Pipe Threading Machine	30 Minutes
Small Drill Press	20 Minutes
Railroad Tank Car	2 Hours

Jenny® SERIES 1800 STEAM CLEANER

SERIES 1800 . . . one of 80 different models and types.

Maintenance superintendents report that Hypressure Jenny cuts cleaning time to one-tenth the time required by ordinary methods. Reduces down-time to a minimum. Regardless of how large or how small your cleaning job, there is a Hypressure Jenny to fit your requirements. In addition, the revolutionary Jenolizing process prevents rust after steam cleaning. Write for details now.

HOMESTEAD VALVE MANUFACTURING COMPANY
Hypressure Jenny Division • Coraopolis, Pennsylvania

Please send me information on "How Industry Gets More Productive Hours" with Hypressure Jenny Steam Cleaners. 23

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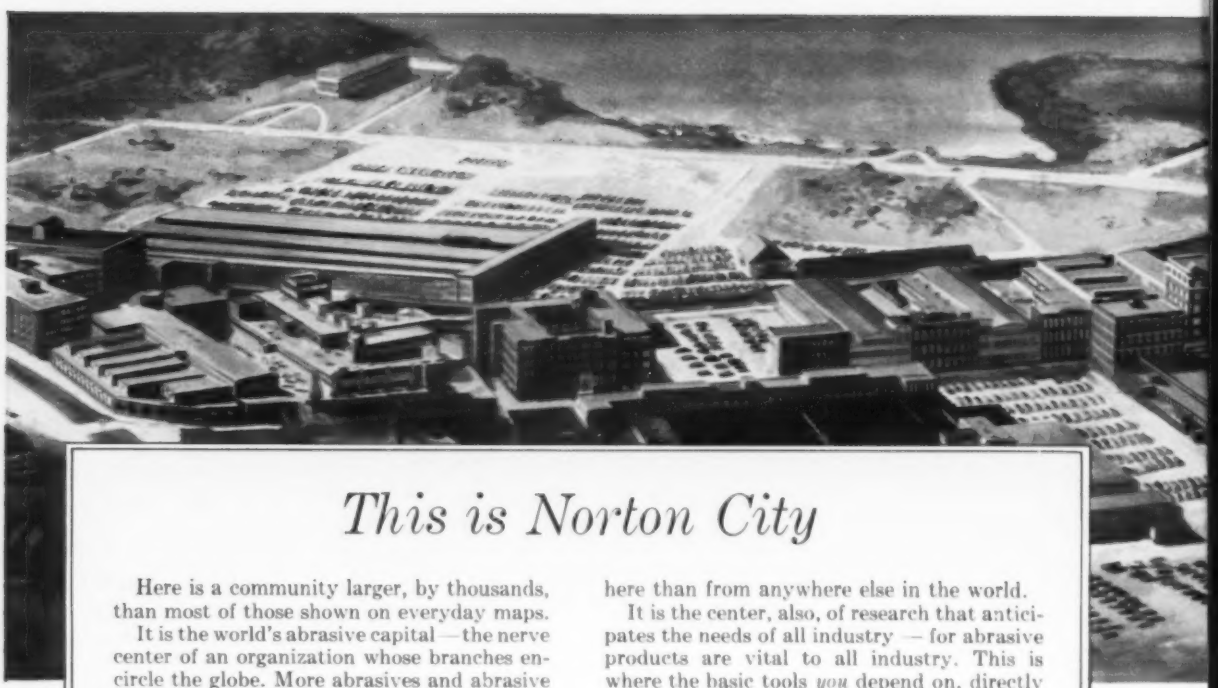


This is Norton City

Here is a community larger, by thousands, than most of those shown on everyday maps.

It is the world's abrasive capital — the nerve center of an organization whose branches encircle the globe. More abrasives and abrasive products are shipped from the many plants here than from anywhere else in the world.

It is the center, also, of research that anticipates the needs of all industry — for abrasive products are vital to all industry. This is where the basic tools *you* depend on, directly or indirectly, are made. *This is Norton City.*

Are there any bargains

There certainly are. But you can't evaluate a grinding wheel by its price alone. The only genuine bargains are wheels that bring steady economy to your grinding. You get them from Norton, with these advantages:

Top quality and top performance, resulting from Norton pioneering in research, engineering and manufacturing.

No delays in your production due to wheel variations, because Norton supplies you with precision-duplicated wheels . . . from complete warehouse and distributor stocks near you . . . meeting standard or special requirements with fast deliveries, regular or emergency.

Lowest cost per piece ground, aided by the product application experience of your Norton Abrasive Engineer . . . who is always ready to assist your production men in selecting exactly the right wheels you need to cut grinding costs.

Norton grinding wheels are your real, money-saving bargains — bringing you the "Touch of Gold" that increases product value and production profits.

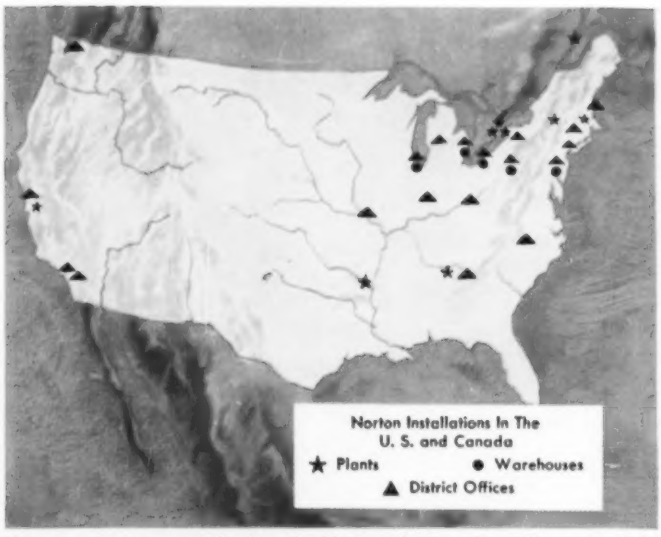
NORTON COMPANY, General Offices, Worcester 6, Massachusetts. *Plants and distributors around the world.*

First in abrasives. Abrasives — in particular, Norton grinding wheels and Behr-Manning coated abrasives — are the principal Norton products. Included are all types of abrasives — diamonds among them — the most advanced bonding processes, and every wheel shape and size required by industry.

Making better products...

Main Office and Plant at Worcester, Massachusetts

in abrasives?



From coast to coast. Besides the Norton plants and warehouses and district offices indicated here, there is a Norton distributor convenient to every manufacturer in the U. S. A. Norton warehouses are located in important industrial centers. Abroad, Norton has plants in England, Northern Ireland, France, Germany, Italy, Australia, South Africa, Argentina and Brazil.

Processes. The first continuous tunnel kiln for processing grinding wheels was pioneered by Norton 30 years ago. This one is a recent Norton development. Used in the firing of grinding wheels, it provides closeness of quality control never before possible. Modern electronics guard quality continuously.

NORTON
ABRASIVES

to make your products better

(Advertisement)

Chemical Prepaint Treatments for Metal Surfaces

What they do, the types available, how they are applied

By J. H. GEYER
Manager, Product Development Dept.,
AMCHEM PRODUCTS, INC.

Paint systems have been steadily improved in an effort to produce more decorative, easier-to-apply, and more corrosion-resistant films. The ability, however, of any paint film to perform its predetermined functions cannot be fully utilized without properly preparing the metal surface.

The prepaint preparation of the metal surface is therefore a highly important part of the system. Chemical prepaint treatments are designed to do four jobs and do them well. First, they remove organic soils, shop dirt, scale, and rust or corrosion products from the metal surface. Second, they provide surfaces that are completely compatible with subsequent paint films. Third, they produce a *tooth* that promotes good paint film adhesion. Fourth, they effectively prevent underpaint corrosion growth after any breakthrough in the paint film.

Basically, there are four types of chemical prepaint treatments. These are phosphoric acid, iron phosphate, zinc phosphate, and amorphous phosphate or chromate. Each is discussed briefly in the following paragraphs.

Phosphoric Acid

Perhaps the most widely used and certainly one of the most economical chemical prepaint treatments is the phosphoric acid cleaner combination materials. ACP Deoxidine® is such a material. It removes organic soils, rust, scale and contaminating elements from the metal surface. It also produces a light etch on steel, aluminum or zinc surfaces which considerably aids in increasing paint adhesion. It does not, however, form an actual coating on the metal surface. Any breakthrough in the subsequent paint film will permit underfilm corrosion to proceed. Grades of Deoxidine are available for application by brush or swab, hot and cold dip, or hot spray.

Iron Phosphate

Iron phosphating processes are extensively used in the chemical prepaint treatment of appliances such as water heater shells, ranges, washers, dryers and other *white lines*. These processes will produce excellent paint-bonding films on the metal and retard or prevent underpaint corrosion. Duridine,® ACP's iron phosphating process, is a combination organic soil cleaner and iron phosphate coating material. Both the cleaning and coating operations take place in the same bath. Duridine and other iron phosphates do not lend themselves to brush-on application, are primarily designed for spray type equipment of four or five stages. But several dip installations are successfully operating today by inclusion of an alkali precleaning stage.

Zinc Phosphate

ACP Granodine® is an example of this type of chemical prepaint treatment process, the type now being used to treat steel in the automotive industry, and predominantly specified for steel ordnance and military items. This process forms a coating which offers the ultimate in paint adhesion promotion and vastly augments the corrosion resistance of subsequent paint films. Zinc phosphate materials are extremely flexible as to method of application—can be applied by brush, dip or automatic spray equipment. In a typical dip or power spray system, the stages would be alkali clean, water rinse, zinc phosphate treatment, water rinse, and acidulated final rinse. If the metal has considerable areas of rust or scale, an acid pickle is advisable following the alkali cleaning stage.

On zinc surfaces, the zinc phosphates perform a rather unique function. They act as a barrier against chemical reaction between the applied paint film and the zinc surface. This effectively prevents blistering of the paint and early breakdown of the film. This is in addition, of course, to the improvement of paint adhesion and the retarding of underpaint corrosion. ACP Lithoform® is specially designed for use over zinc surfaces and finds wide application as a prepaint treatment for ornamental zinc die castings, refrigerator liners, and on most galvanized work requiring painted finishes.

Amorphous Phosphate and Chromate

These coatings are the films produced by the ACP Alodine processes and similar ones on aluminum surfaces. They have met with wide acceptance in the prepaint treatment of venetian blind strips, refrigerator liners, aluminum heat transfer units, aircraft sheet metal assemblies, and many other items fabricated from aluminum. The various coatings provide an excellent film for the promotion of paint adhesion and effectively prevent underfilm corrosion. As in the case of zinc, aluminum exhibits a tendency to chemically react with some paint systems. The Alodine processes develop a barrier film between the paint and the aluminum surfaces which prevents this reaction. The Alodines are extremely versatile materials that can be applied to aluminum surfaces by brush, hand spray, dipping, mechanical spraying, or roller coating equipment. Brush application is particularly well adapted to the processing of parts too large for simple dip systems or in manufacturing operations that do not warrant a tank setup. In dip, spray or roller coating application, the system usually consists of an alkaline preclean, a water rinse, the Alodine treatment, a water rinse, and an acidulated final rinse. Where the surface is heavily oxidized, a deoxidizer in the line is needed.

The major chemical prepaint treatments for metals have been covered briefly in this article. More complete information can be had by contacting an ACP sales representative or by writing us at Ambler, Pa.

Amchem Products, Inc.
Ambler 20, Pa.

CHEMICALS ACP PROCESSES

Formerly
AMERICAN CHEMICAL PAINT COMPANY
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New Chemical Horizons for Industry and Agriculture

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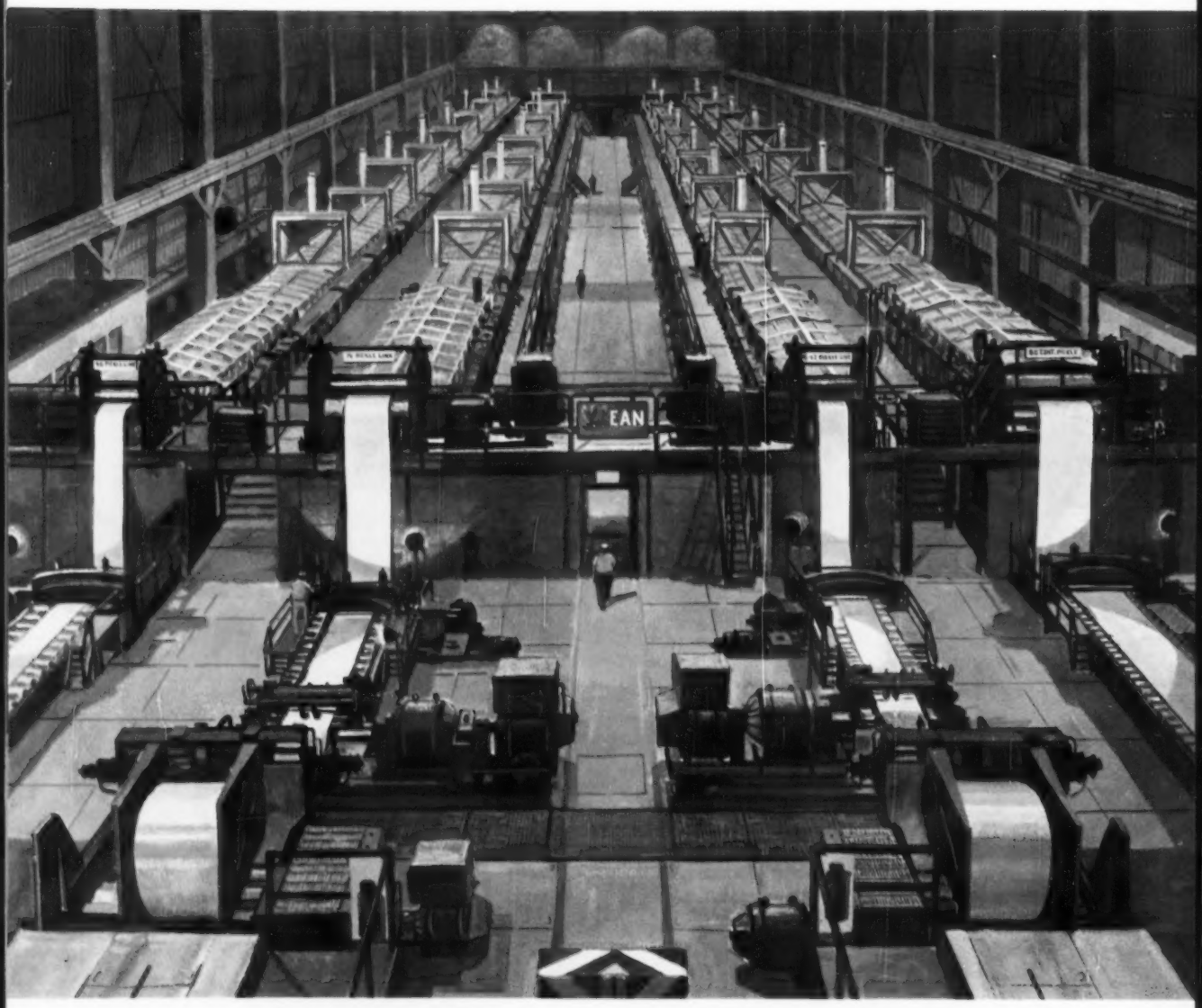


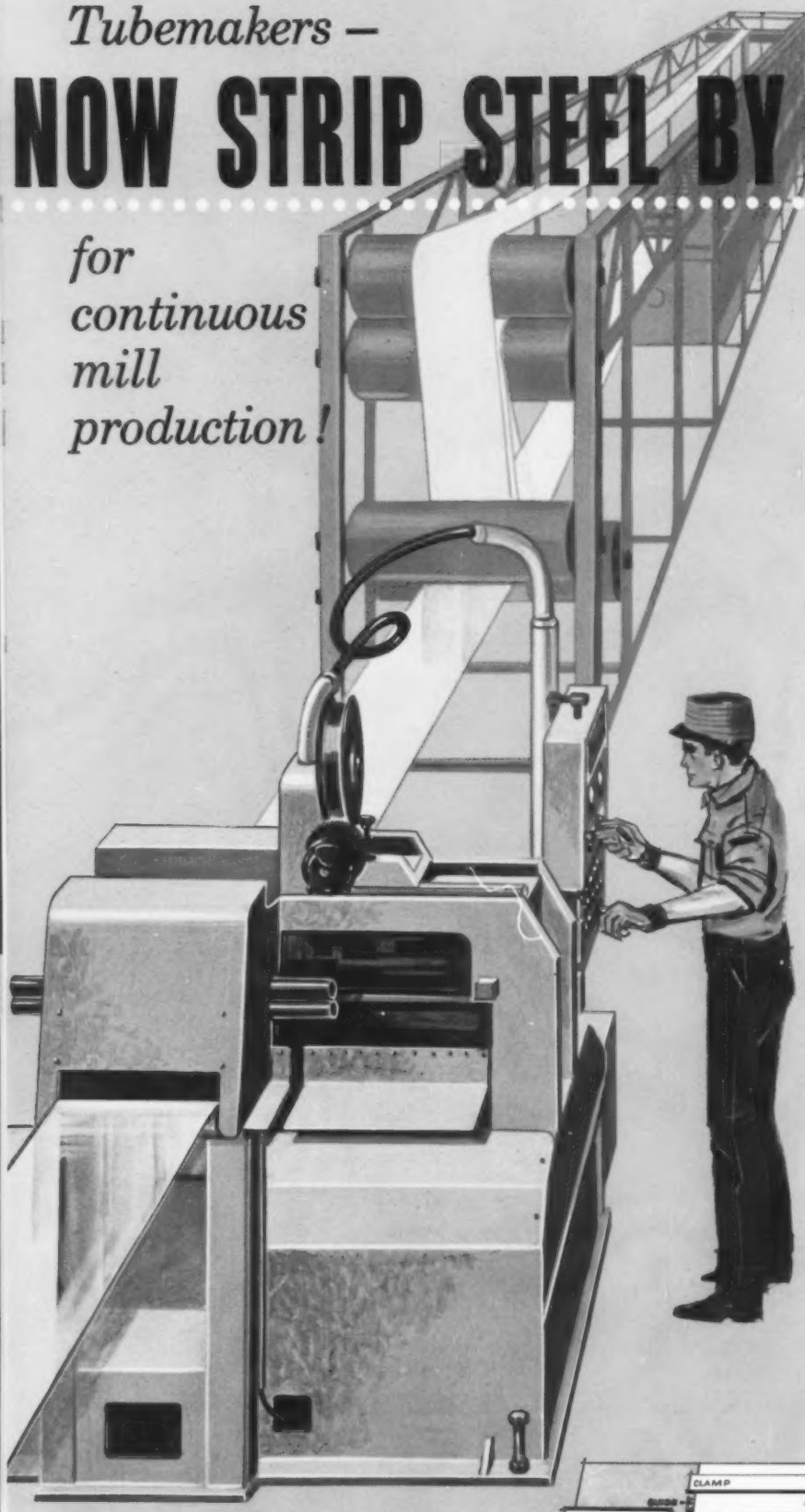
Automation, which has become the magic word of industry in the past few years, has been a reality in the steel industry for many years. As a pioneer in the development of continuous steel processing lines, Wean has engineered and installed over 60 continuous pickling lines for leading steel producers.
In this Gary plant of U. S. Steel, these four pickling lines are typical of Wean's steel mill automation.
From coil holder to finished mill product . . .
sheet, tin and strip processing is faster, better, through . . .
Wean Creative Engineering.

THE WEAN ENGINEERING COMPANY INC. • WARREN • OHIO

Tubemakers –

NOW STRIP STEEL BY THE MILE

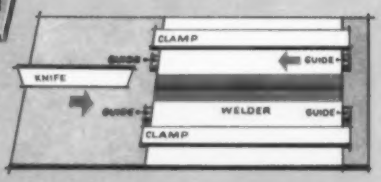
for continuous mill production!



The "MPM SHEAR WELDER" is "a natural" for increasing output and reducing coil end scrap loss.

Perfect welds are a result of positive guiding and clamping, right at the weld area. *(See diagram below.)* Both shearing and welding are done at the same station.

The "MPM" is the fastest, most accurate and compact machine of its kind, that's why tubing manufacturers prefer them over any other type. They are available in a complete range of sizes for any tube mill application. Other types are available for joining strip or sheets of any metal.



Metal Processing Machine Co.
Subsidiary of The McKay Machine Co.
YOUNGSTOWN, OHIO

McK
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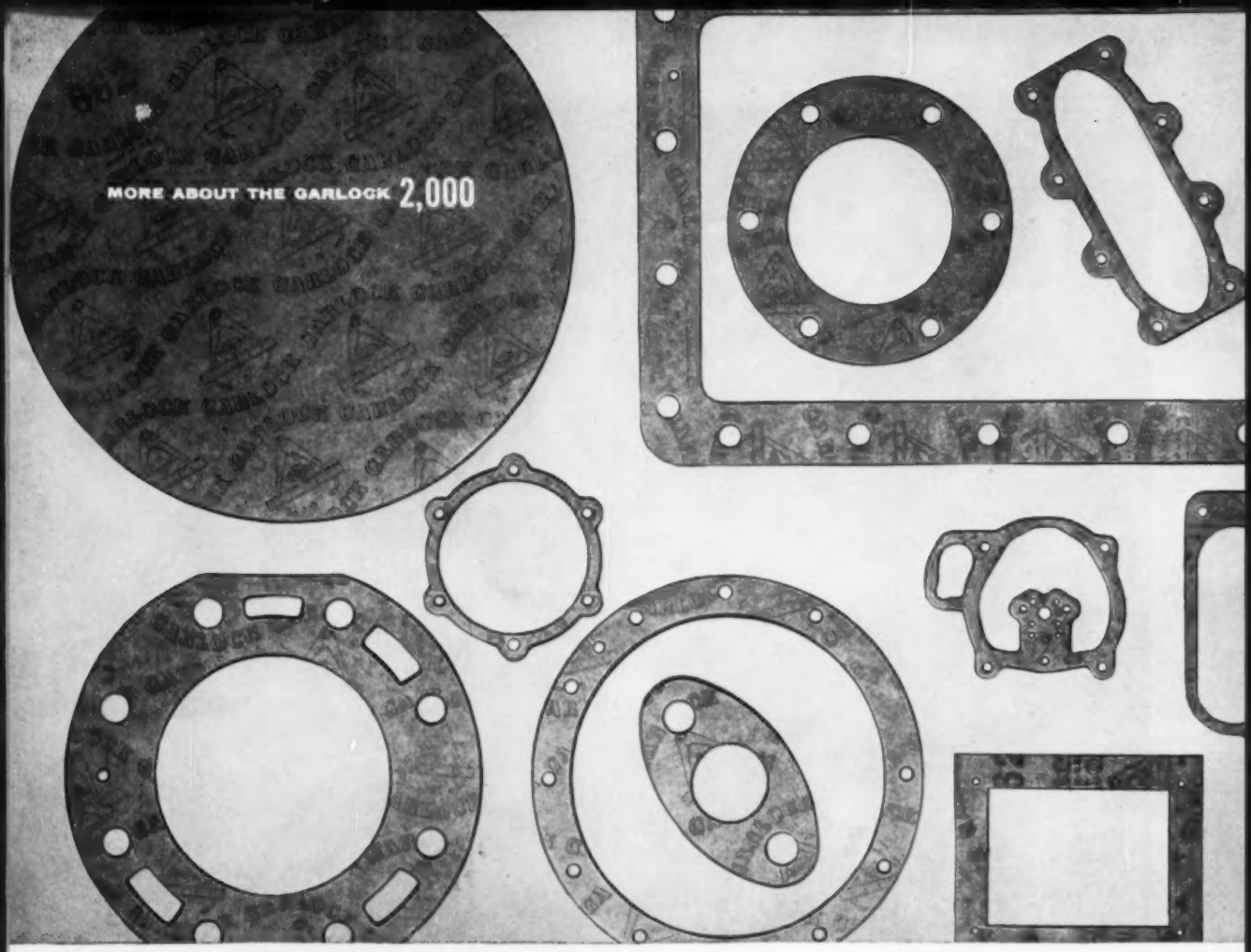


WON'T SHRINK...WON'T CHANGE SHAPE

GARLOCK 662 GASKETING MATERIAL

Tests prove Garlock 662 is best for use against oils, solvents, and water to 300° F. It won't shrink or change shape; will not corrode aluminum, magnesium, etc.; is resilient, compressible, and non-porous . . . in fact 662 has everything you want in a gasket for crankcases, gearcases, oil pans and other applications involving moderate internal pressures.

662 is made from a cork paper base impregnated with BUNA-N. Does not contain glycerine and is approved by Underwriters' Laboratories, Inc. for use against hazardous liquids such as naphtha, benzine, fuel oils, etc. Available in 48″ wide rolls from $\frac{1}{64}$″ to $\frac{1}{8}$″ thick and in sheets 48″ x 48″ from $\frac{1}{8}$″ to $\frac{1}{4}$″ thick. Write for Folder AD-146.

Garlock 662, 681, and 660 Gasketing materials are another important part of the Garlock 2,000 . . . two thousand styles of packings, gaskets, and seals for every conceivable need. The only complete line. That's why you get unbiased recommendations from your local Garlock representative. Call him today.

Other Underwriters' Approved Gasketing Materials

GARLOCK 681. Vegetable fibre compound with glue binders. Treated with glycerol. For sealing against oils, gasoline, solvents. Withstands moderate pressures and temperatures to 212° F. Sizes from .006″ to ½″ thick in 40″ widths. Write for AD-162.

GARLOCK 660. Granulated cork base with oil-resistant binder. Used where greater compressibility needed for irregular flange surfaces; for application involving low pressures and temperatures to 212° F. Sizes from .010″ to ½″ thick in 36″ widths. Write for AD-162.

THE GARLOCK PACKING COMPANY, Palmyra, New York

For Prompt Service, contact one of our 30 sales offices and warehouses throughout the U.S. and Canada.

GARLOCK

Packings, Gaskets, Oil Seals, Mechanical Seals, Molded and Extruded Rubber, Plastic Products

REPUBLIC STEEL WIRE
Helps Sell Sleeping Comfort

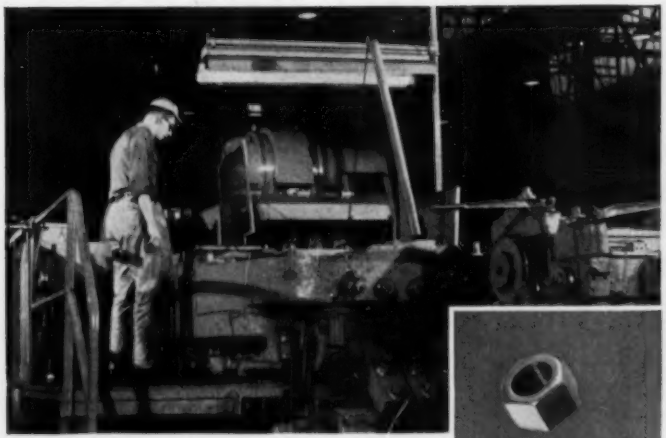
The Englander Company, Inc., employs a new concept in construction of innerspring mattresses and Tension-Ease foundation units. Helical type springs, formed from Republic Spring Wire, are anchored at the center to thin strips of steel. This permits each spring to compress independently of the others, resulting in even distribution of weights and pressures, and providing the ultimate in sleeping comfort.

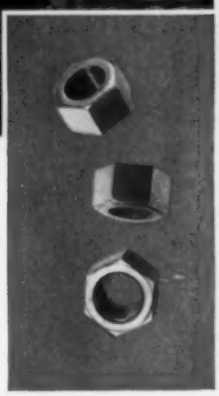
"A good night's sleep is half the battle"—and it's doubtful if any businessman will argue with that statement. With this in mind, The Englander Company, Inc., one of the nation's largest manufacturers of box springs and innerspring mattresses, goes all-out to guarantee the finest in sleeping comfort.

Republic Spring Wire plays an important part in the popular reputation Englander has built in both the regular and deluxe Tension-Ease units. Englander forms Republic Spring Wire into cone-type springs for the box springs, and into Bonnell, or hourglass helical type springs, for the mattresses. These two types yield correctly and comfortably to body contour.

Republic's experienced wire metallurgists know that spring wire, or any wire, is not sold off the shelf. They investigate the desired end use—the problems of quality, yet low-cost, quantity production—then suggest a specification to do the job.

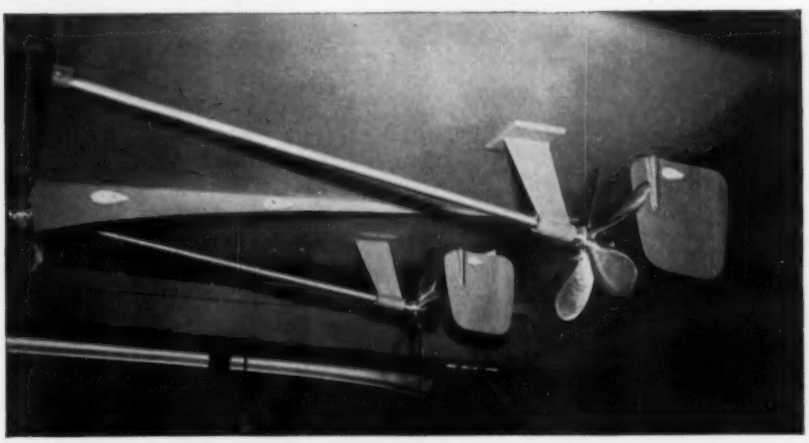
Possibly you can sleep better in the future, too, if your product is fabricated from Republic Wire. Republic Wire Metallurgists are ready to assist you in selection, application, and processing. The coupon is your invitation to use their services. Mail it today.





THERE IS COMFORT in knowing that when you specify Republic Fasteners, you can count on consistent uniformity from one unit to the next, year in and year out. You get unswerving quality and dependability in each fastener, in any quantity. Skilled workmen, using modern production equipment like the nut former shown above, maintain uniform quality in each type of fastener. Your Republic Bolt and Nut Division representative or distributor will be glad to work with you to make sure you get exactly the right fastener to suit your application. Send coupon for full information on types and sizes.

RELIABILITY AND HEAVY-DUTY PERFORMANCE help sell portable electric tools and help build a first-class product reputation for The Black & Decker Manufacturing Company, Towson, Maryland. Maintaining this reputation requires constant vigilance in quality control of both methods and materials. Republic Cold Finished Alloy Steels have met every requirement for vital gear train components. The strength and toughness of these steels gives Black & Decker gears the ability to shrug off repeated shock and heavy loading—and come back for more. Check on the many advantages that Republic Cold Finished Alloy Steels can offer your product. Call your local Republic office or mail the coupon.



COMFORTABLE CRUISING is a major selling feature of Roamer Steel Boats, Division of Chris-Craft Corporation, Holland, Michigan. Vibration, a mechanical problem caused by out-of-true drive shafts, has been reduced to a minimum by Roamer through standardization of stainless steel shafts for their line of pleasure cruisers. The shafts are machined from uniformly straight Republic Cold Finished Stainless Steel Bars, Type 304. The bars meet Roamer's strict, maximum tolerance requirement of .006″ runout in 72″ of shafting. Stainless steel shafts also provide high strength and outstanding corrosion-resistance. Republic specialists will help you use Cold Finished Stainless Steel Bars to best advantage. Send coupon for facts.

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World's Widest Range of Standard Steels and Steel Products

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☐ Have a Wire Metallurgist call.
Send more information on:
☐ Spring Wire ☐ Cold Finished Stainless Steel Bars
☐ Cold Finished Alloy Steel Bars ☐ Bolts and Nuts

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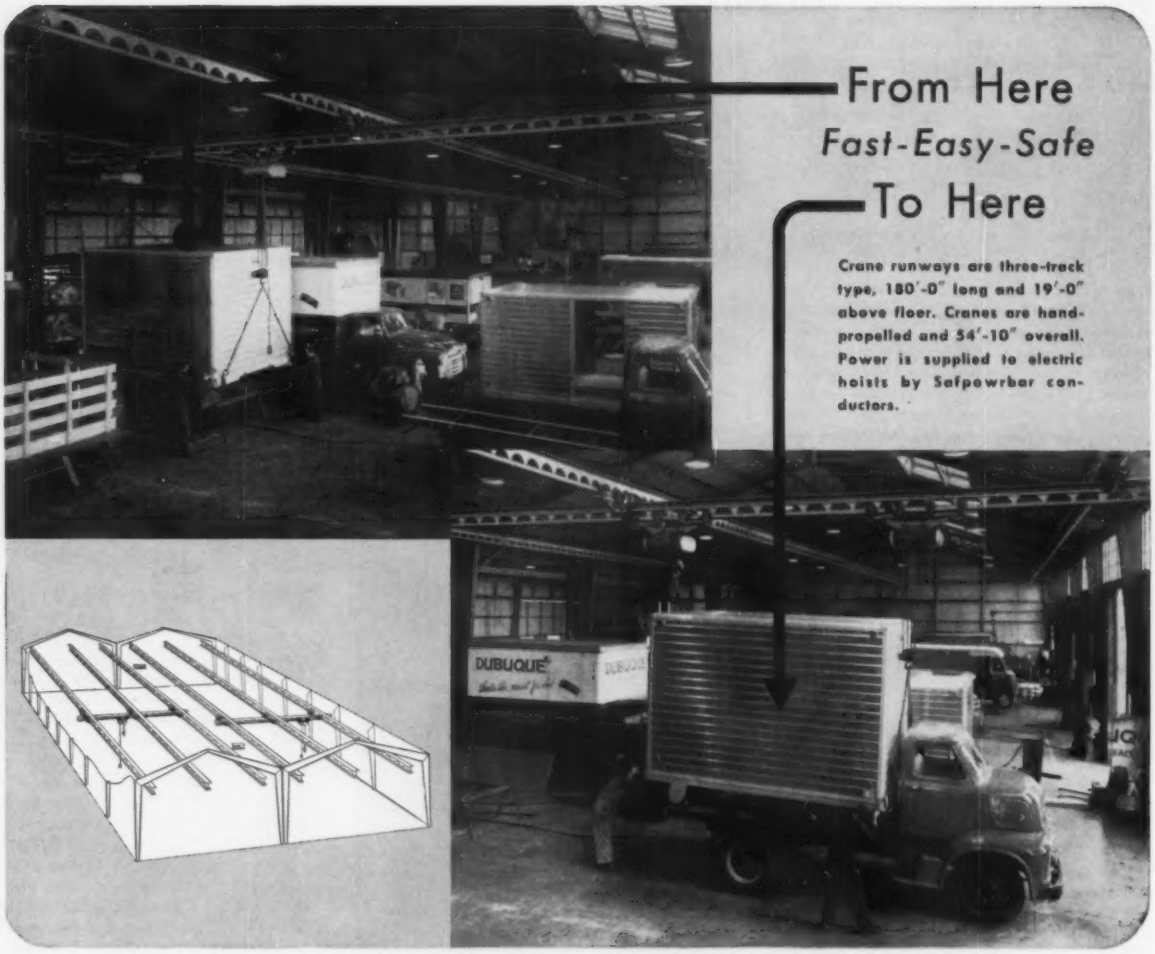
TRAMRAIL TRANSFER CRANES
SPEED BODY WORK



TRUCK and trailer bodies are big, heavy and awkward to handle. It takes considerable time to move them from one point to another by ordinary means. With an overhead Cleveland Tramrail transfer crane system, however, the work is made simple, easy and fast.

C & C Trailer & Body Co., Oakland, California, erected a plant consisting of two prefabricated Soule Steel buildings assembled together, side by side. A 3-ton, 3-runway transfer crane was installed in each. Two cross-over spurs were provided, permitting a load being transferred from one crane to the other. Bodies, or other loads, can therefore be picked up at any point in the entire plant and delivered directly to any other point.

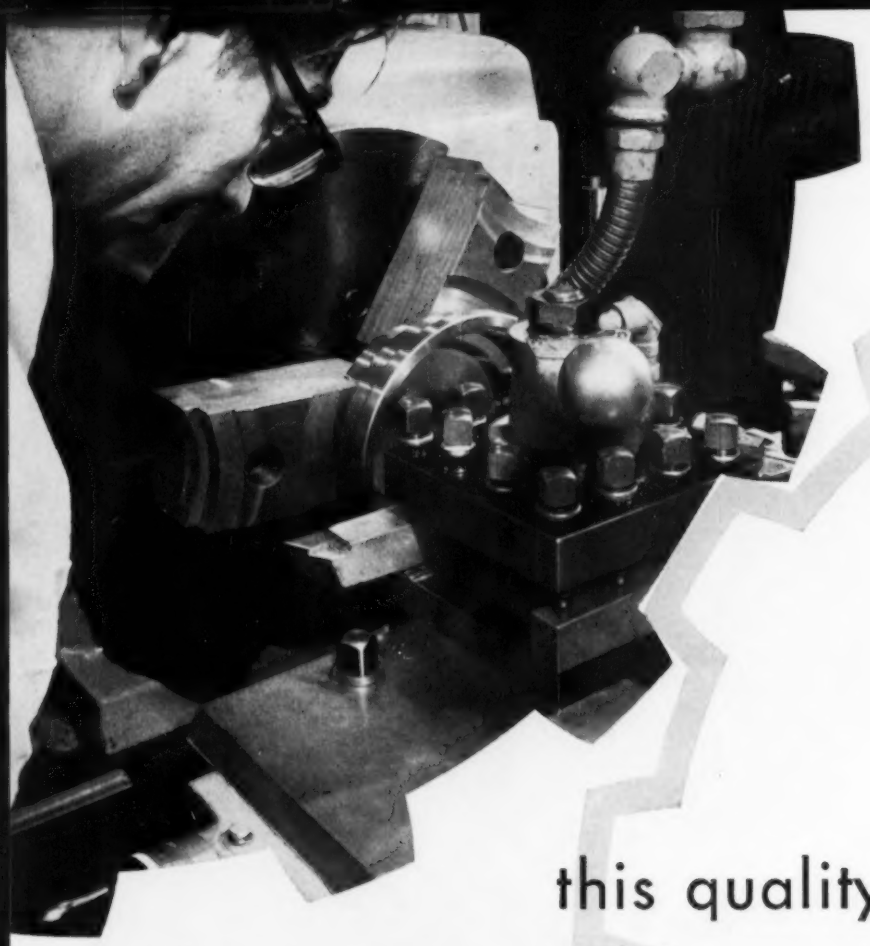
The smooth rolling cranes are always ready to provide handling service any place in the plant. They eliminate a great deal of unnecessary motion. Handling time is reduced and production speeded, resulting in lower costs.

GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
4808 EAST 290TH ST., WICKLIFFE, OHIO.

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT



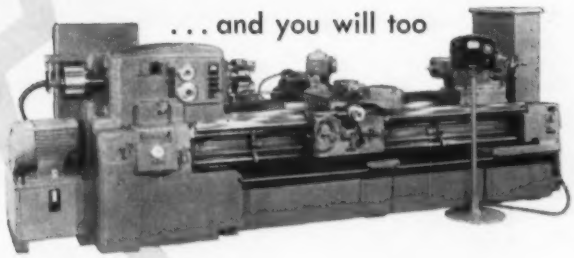
By investing dollars wisely . . .

and meshing Monarch Air-Gage Tracer Dyna-Shift Lathes into the production line . . .

this quality gear maker

Cuts Turning Costs over 50%

. . . and you will too



Monarch
TURNING MACHINES
FOR A GOOD TURN FASTER . . . TURN TO MONARCH

Let Western Gear people tell you how their investment is paying off—quickly!

(The following statements were all made voluntarily by shop men of Western Gear Corporation's Lynwood Works, Lynwood, California.)

A. "We combine know-how with the finest equipment to machine 'impossible' tolerances in production line quantities. Standard machinery just will not do the job.

"On one job the metal involved was nitrolloy and our standard lathes required 30 minutes. With the MONARCH Dyna-Shift lathe, we produce the same part in only 6 minutes, an 80% reduction of production time."

B. "In another instance, our standard machine required 75 minutes to machine one part, as compared to only 40 minutes on a MONARCH lathe. Production rejects on standard lathes averaged 7% to 8% on these parts (turned from 4140 steel) . . . but we've almost eliminated rejects on the MONARCH lathes, saving as much as 50% on material costs on some parts."

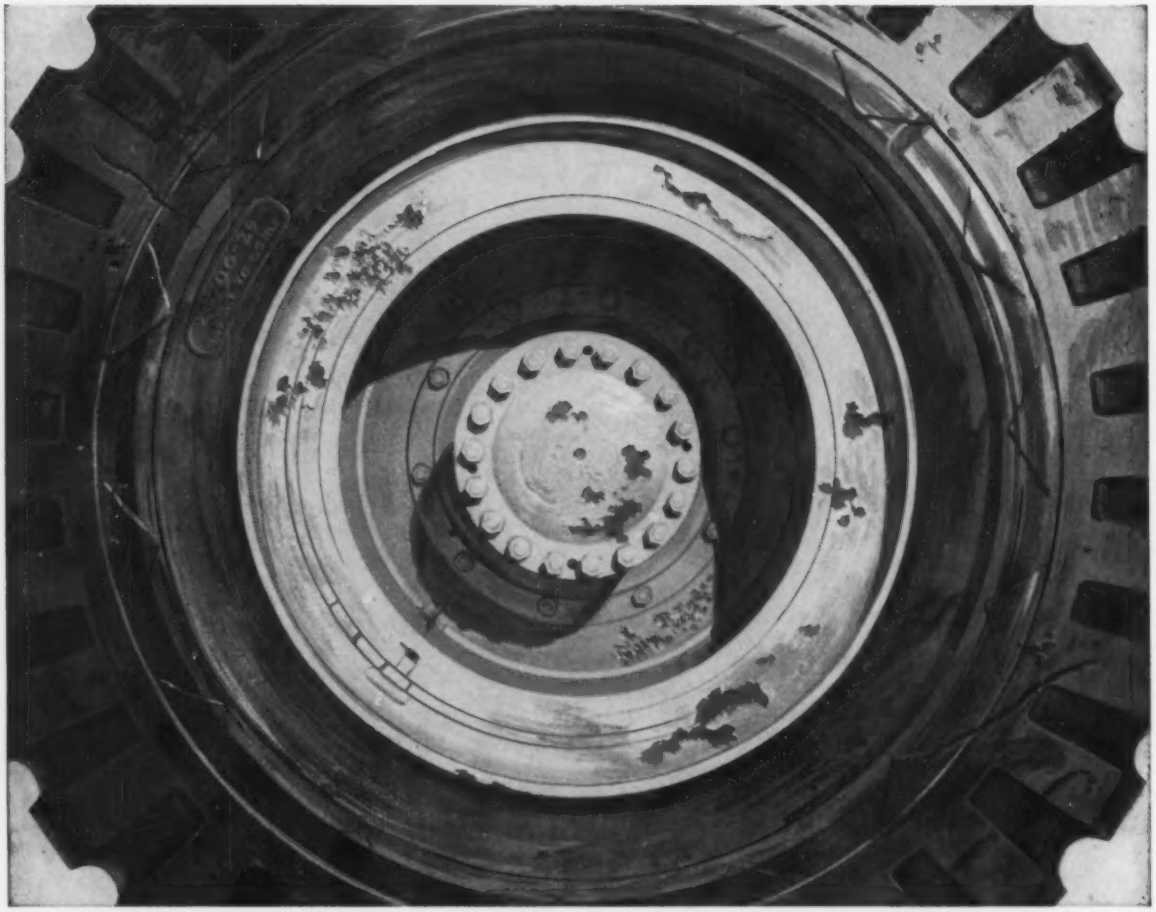
C. "The manufacture of gears to total composite errors of .0005", and tooth-to-tooth errors of .0002", is an everyday occurrence here. MONARCH lathes have enabled us to maintain these tolerances virtually eliminating rejects and reducing production time per unit by a drastic margin."

D. "The MONARCH tracer is a production machine capable of turning out different diameter sizes in lots from 100 to 500 pieces and up from the template . . . yet it does the job without variation, and the only detectable changes occur because of the tool wear."

Isn't it time you investigated the greatest combination in lathes to date—the MONARCH Preselector Dyna-Shift with Air-Gage Tracer? Write for our new booklet No. 2609. It's loaded with many examples of Air-Gage Tracer savings.

The Monarch Machine Tool Company, Sidney, Ohio

BETTER PROTECTION for metal surfaces



Isophthalic based paints last longer under severest conditions—*resistant to checking, peeling, chipping*

Now you can add years of protection to metal surfaces thanks to the adhesive properties of Isophthalic based paints. Better film to metal bond means improved performance with fewer prime coats required—saves time, cuts painting costs.

Surface coatings made with Isophthalic have better abrasion resistance than ordinary paints, hold up longer under severe weather conditions, provide improved gloss retention. Whether you buy exterior or interior paints, finishes for furniture or tough coatings for machinery it will pay you to find out about Isophthalic based paint.

ASK YOUR PAINT SUPPLIER about finishes made from this new material—*Isophthalic*.

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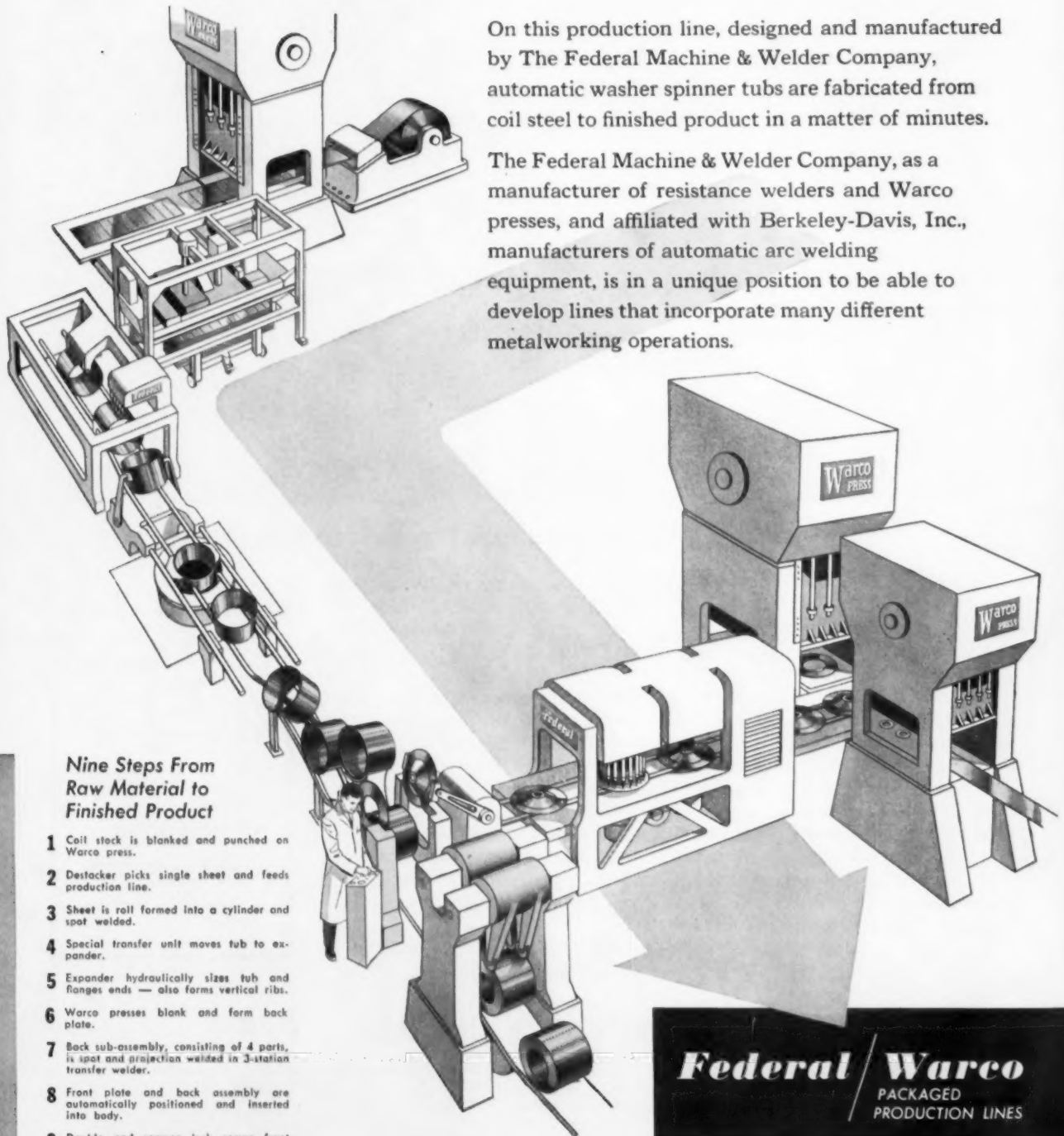
4031

THE ACCENT IS ON PRODUCTION

in a production line by FEDERAL

On this production line, designed and manufactured by The Federal Machine & Welder Company, automatic washer spinner tubs are fabricated from coil steel to finished product in a matter of minutes.

The Federal Machine & Welder Company, as a manufacturer of resistance welders and Warco presses, and affiliated with Berkeley-Davis, Inc., manufacturers of automatic arc welding equipment, is in a unique position to be able to develop lines that incorporate many different metalworking operations.



Nine Steps From Raw Material to Finished Product

1. Coil stock is blanked and punched on Warco press.
2. Destacker picks single sheet and feeds production line.
3. Sheet is roll formed into a cylinder and spot welded.
4. Special transfer unit moves tub to expander.
5. Expander hydraulically sizes tub and flanges ends — also forms vertical ribs.
6. Warco presses blank and form back plate.
7. Back sub-assembly, consisting of 4 parts, is spot and projection welded in 3-station transfer welder.
8. Front plate and back assembly are automatically positioned and inserted into body.
9. Double end seamer lock seams front plate and back assembly to body and ejects finished tub.

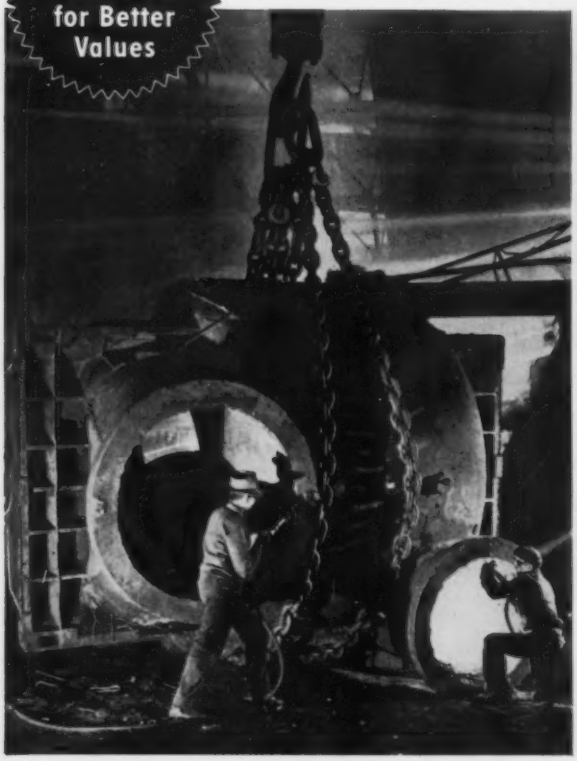
* Sequence of operations controlled by static relay system designed and built by Federal.

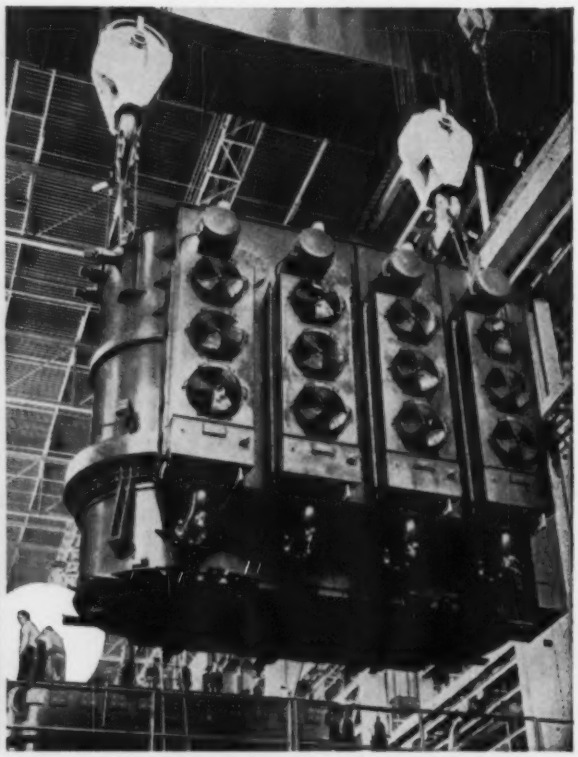
Federal / Warco
PACKAGED PRODUCTION LINES

THE FEDERAL MACHINE AND WELDER COMPANY, WARREN, OHIO
Affiliated with Berkeley-Davis, Inc., Danville, Illinois

ACCO for Better Values

Acco Registered® Slings–Chain or Wire Rope





Why different loads require different slings

Your rigger knows that different loads need different slings because of varying factors such as shape, weight, material, finish, protruding sharp corners, extremes of temperature.

On some jobs chain is best. On others the characteristics of wire rope make it the first choice. On still other jobs, wise riggers know that combinations of chain and wire rope will provide the greatest lifting economy.

No matter what type is called for, you can be sure of the safest slings and the best values in ACCO *Registered* Slings. From this one source you can get unbiased information based on actual know-how.

And you can get the exact slings your rigger should have.

One of the recent improvements is the new shaped Master Link now provided without extra cost on all ACCO *Registered* Slings, chain or wire rope. This link gives 18% greater resistance to distortion with no increase in weight. It is another reason why ACCO *Registered* Slings are recognized as the standard of efficiency and safety.

All ACCO *Registered* Slings are proof-tested, registered and identified for your greater assurance of safety.

• • •

Tell your distributor you'd prefer ACCO *Registered* Slings.

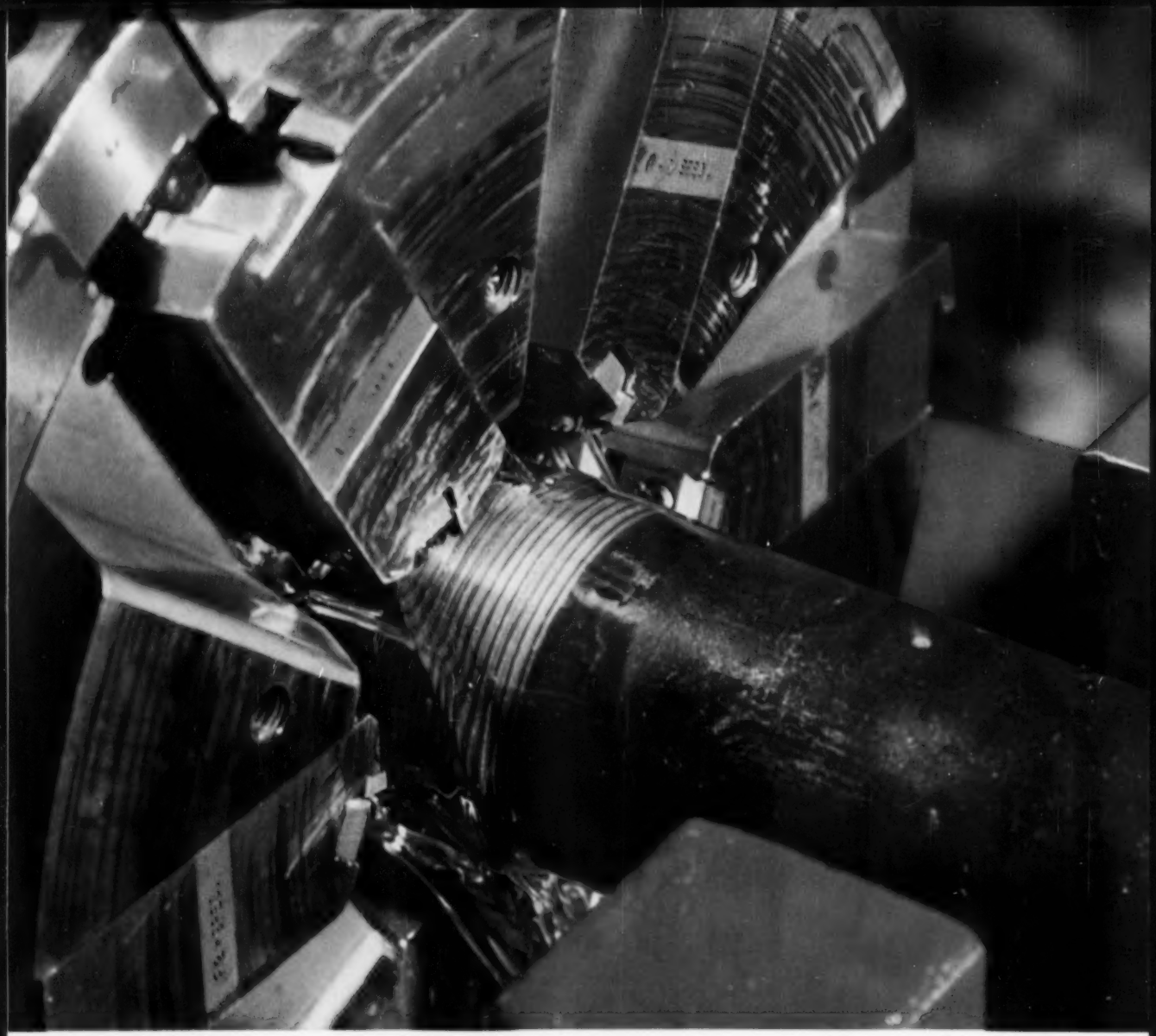
WHAT "ACCO REGISTERED" MEANS

1. The best material
2. Unit safety factor (on bodies, rings, links, hooks)
3. Proof test of complete sling to twice the working load limit
4. Actual field service test of each design
5. Metal identification ring or tag on each sling
6. Signed Registry Certificate with each sling

AMERICAN CHAIN & CABLE
BRIDGEPORT, CONN.

ACCO

Atlanta, Boston, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, Portland, Ore., San Francisco, Wilkes-Barre, Pa., York, Pa.
In Canada: Dominion Chain Co., Ltd., Niagara Falls, Ont.



This is just one of the many applications of Sunicut 85, which is one of a whole series of Sunicuts . . . all transparent.

SUNICUT 85 is a heavy-duty cutting oil that lets you see what you're doing

Transparent, fast-draining Sunicut® 85 leaves the workpiece clear for inspection as you go.

Especially designed for use on high-alloy steels, Sunicut 85 is ideal for heavy-duty work on automatic screw machines and production form grinders. It's a natural for pipe threading and similar heavy-duty operations requiring frequent and close inspection.

Easy pumping, fast metal-wetting, and excellent extreme-pressure lubrication are other advantages of Sunicut that lead to production economy for you.

Ask your Sunoco representative about saving money with Sunicut, or write to Dept. I-10.

Industrial Products Department

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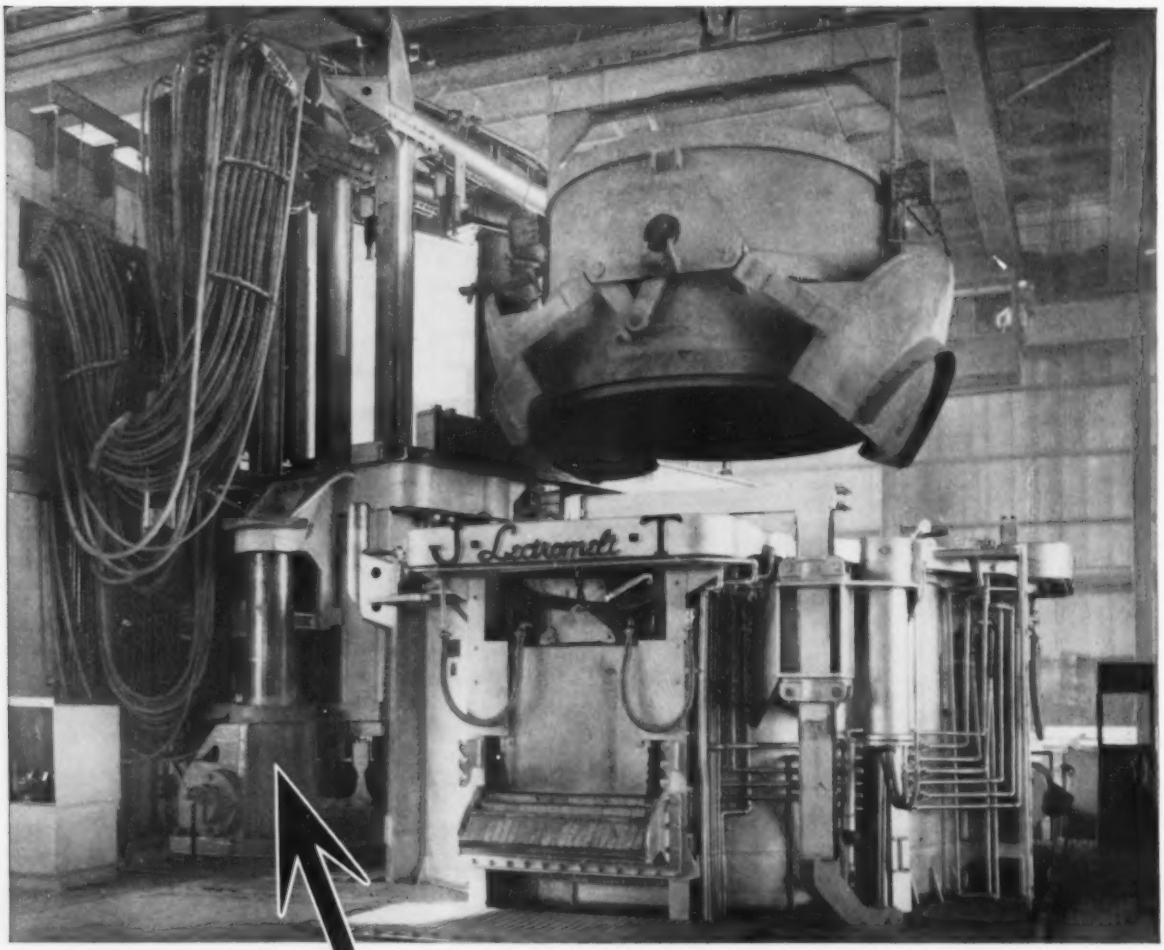


Separately mounted roof lift-and-swing mechanism on Lectromelt Furnaces . . .

Offers these advantages

★ **No heavy parts attached to furnace shell to cause strain and distortion**

★ **No jarring of roof, electrode arms or ram parts when heavy charges are dropped into the furnace**

★ **Allows uniform heat radiation all around the shell**

★ **Roof lift mechanism is away from excess furnace heat**

★ **Roof can be lifted higher, permitting larger charges**

★ **Shells can be readily interchanged**

★ ★ ★

All good reasons for specifying Lectromelt furnaces. They're described in Catalog No. 10. Lectromelt Furnace Division, McGraw-Edison Company, 312 32nd Street, Pittsburgh 30, Pennsylvania.

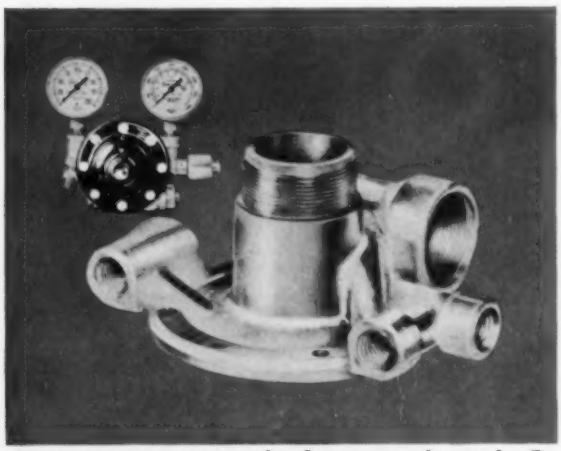
Lectromelt®

McGRAW-EDISON

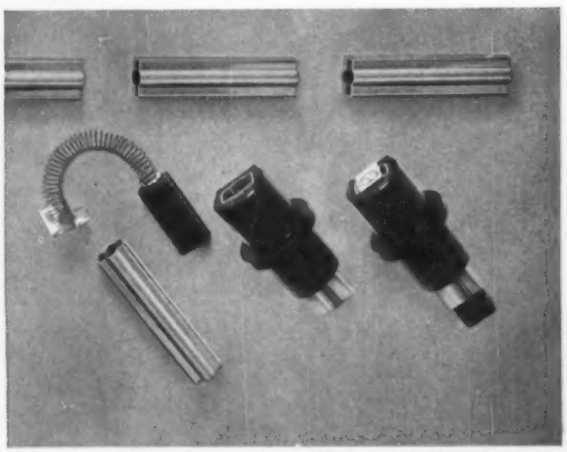
STANDARD SIZES UP TO TWO HUNDRED TONS CAPACITY

CANADA: Canefco Limited, Toronto... ARGENTINA: Master Argentina, Buenos Aires... ITALY: Forni Stein, Genova... ENGLAND: Electric Furnace Co., Ltd., Weybridge... GERMANY: Demag-Elektrometallurgie, GmbH, Duisburg... SPAIN: General Electrica Espanola, Bilbao... FRANCE: Stein et Roubaix, Paris... BELGIUM: S. A. Stein & Roubaix, Bressoux-Liege... JAPAN: Daido Steel Company, Ltd., Nagoya

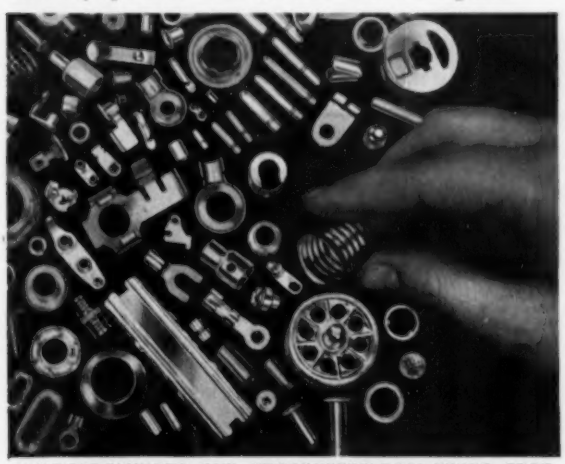
TAKE A FRESH LOOK at the way you are fabricating metal parts. Cost-cutting possibilities are almost unlimited with these Anaconda pre-formed mill products and press products.



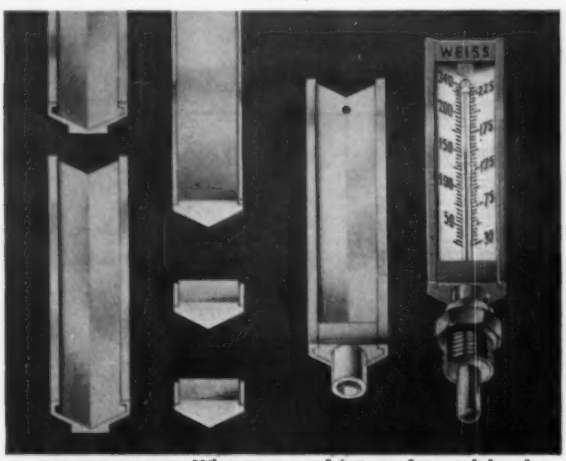
DIE-PRESSED FORGINGS, made of twice-wrought metal, offer superior uniformity, denseness, accuracy. *Savings*: replace more costly built-up assemblies—often are less in first cost than sand castings—require minimum surface machining to size—simplify secondary operations—lower tool cost—lower finishing cost.



SPECIAL-SHAPE TUBES can, as in the case of Electrolux, save several steps in arriving at a finished part. Brass electric-motor brush holder (above) is cut economically from long lengths of tube pre-shaped to accommodate both brush and spring. Uniform accuracy of all dimensions helps provide good brush stability.



MULTIPLE-PLUNGER AND PROGRESSIVE-TOOL-PRESS PRODUCTS are cutting costs throughout industry—often over 50%. Main reasons: The American Brass Company's complete design engineering service, long experience, specialized production equipment, a big selection of stock tools. Metals: copper, copper alloys, nickel, iron, steel, stainless steel, or aluminum.



EXTRUDED SHAPES. Wherever you fabricate from solid rod or bar—or castings—consider savings in machining, tooling and scrap by use of extruded shapes. Albert A. Weiss & Sons substituted two extruded shapes, above, for a sand casting—cut cost of thermometer case 41%, got an additional 30% saving in assembly because of consistently uniform dimensions.

HERE are four immediate approaches to cutting costs. Re-evaluate your designs and fabrication methods with these short cuts to finished products in mind. Wherever you spot a possible saving, send a sample, drawing, or description—with the quantity you need, the metal or properties you require—and ask for a quotation. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Limited, New Toronto, Ontario.

DIE-PRESSED FORGINGS • SPECIAL-SHAPED TUBES
EXTRUSIONS • FABRICATED METAL GOODS

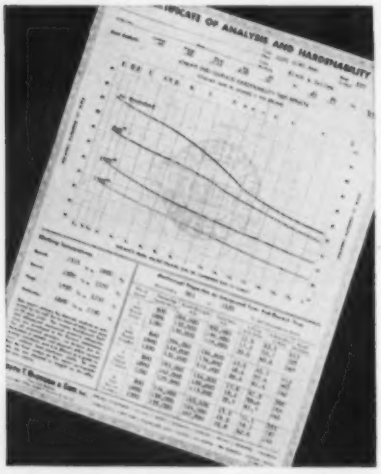
products of

ANACONDA®

Made by The American Brass Company

Spark testing by skilled Ryerson inspectors protects against possibility of mixed steels.

Every bar is identified by its own particular heat symbol and color marking, to indicate type of alloy.



With every shipment you receive a Certificate of Analysis and Hardenability—your complete record of the steel's characteristics, and your guide to dependable heat treatment.

How Ryerson takes the risk out of your alloy steel

Alloys from different heats can vary widely in hardenability—and as a result, vary just as widely in mechanical properties.

This puts a big question mark on how your steel will perform. Moreover, you may not know you have a problem until it's too late.

The big difference with Ryerson is—you know what to count on before you start. Every bar of Ryerson alloy steel is protected by an 8-Point Quality Control Program—including identification by specific heat as well as by type; spark testing to avoid mixed steels; and complete hardenability tests in accordance with A.S.T.M. specs. This enables us to send you a report on every shipment of alloy steel . . . a report telling you what your steel will do, and how to heat-treat to obtain desired properties.

These are the plus benefits you get at no extra cost when you order alloy steel from Ryerson. Call your nearby Ryerson plant today. . . . or ask your Ryerson representative to explain our certified plan.

RYERSON STEEL

Member of the INLAND Steel Family

Principal products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

Pig Iron Sales Gain

Pig iron sales are staying on the upward curve that began in early July. Levels already exceed the original July forecast. Purchases by non-integrated steel producers and ingot mold makers account for a big chunk of the mild gain, but there is no doubt that foundries are starting to step up their buying rates also.

Extends Cutting Oil Life

A new bacterial inhibitor is said to extend the life of any standard duty soluble oil emulsion two to four times. In a shop test, the inhibitor was added to a 40:1 emulsion used in 11 machine tools. After 22 weeks of use, the inhibited coolant showed no separation or odor formation. By contrast, non-inhibited emulsion used in a control machine had to be replaced in four weeks.

Strength in Foreign Ores

Market strength of foreign ores this year is surprising observers. While Lake Superior district ore shipments are about half of last year's, foreign imports are holding at about 90 pct of the 1957 rate. Labrador shipments are at about a 60 pct rate. Lake Superior shipments now look as if they'll have trouble topping 50 million tons. Early estimates predicted 55-60 million.

Seamless Aluminum Cans

Aluminum can makers will switch to impact-extruded and drawn cans for most potential applications. They feel that new equipment for these processes will soon make aluminum containers very competitive with steel types for several major markets. Aluminum cans with cemented seams will probably be limited to a handful of uses.

Senate Eyes Steel Makers

Steel makers can expect Congress to give them further attention late this year. The Senate's anti-trust subcommittee won't be happy with limited hearings now on price boosts. It's thinking of full-scale hearings after fall elections. Meanwhile steel makers will be urged to rescind recent price hikes.

Powdered Metal Gears

Look for some word soon about transmission gears made from powdered metal. Reliable sources say new powder compositions yield all the desired qualities, and gears can be hardened to R_c 65. Some production and processing details remain to be worked out.

Auto Makers Like Stainless

As much or more stainless steel will be used on 1959 cars as on present models. One luxury car with a two-section roof plans now to make 400 special units with stainless rear-roof panels. If the cars make a hit with the public, production will be boosted to meet the demand.

More Hex Head Fasteners

A leading fastener maker is starting to switch all nuts and bolts from square heads to hex heads except for a few special-use types. It will mean a big educational program at dealer and jobber levels. But the company feels that inventory and purchasing savings will put it over.

Realistic Replacement

Most formulas for replacing capital equipment hinder those who would make a case for toolroom machines, one executive says. Yet he considers a well-equipped toolroom essential because: (1) it provides necessary services; (2) it develops mechanical skills; (3) it spawns well-grounded supervisory personnel for a manufacturing business.

Study Price Control

If a new war should bring on Federal price control, we can expect a roll-back to pre-crisis levels. Present thinking in White House circles is that freezing prices at the levels prevailing in an emergency would be pointless. How far a roll-back would be carried depends on the dimensions of any crisis we might face.

An Unusual PILLOW BLOCK

35.989" BORE x 47.00" HIGH x 48.00" LONG x 7.25" WIDE

YES! It is a **different** Pillow Block! Made for a 36.00" diameter shaft, yet only 7.25" wide . . . another example of Messinger's ability to design and build to exactly meet the unusual requirement.

Let us help you with your next Bearing problem. *Write for literature.*

Smoothing Industry's Pathway ...*for Nearly Half a Century*

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Metalworking Convalescing But Full Recovery Will Be Slow

An IRON AGE survey shows there are both good and bad spots in the picture.

Uncertain outlook for capital equipment spending puts damper on hopes for more than a gradual recovery.

▪ Metalworking seems to be pulling out of its recession, but there's a fly in the recovery ointment: Spending for new plant and equipment still lags.

Until capital spending picks up, the experts warn, the recovery will be incomplete. Capital equipment outlays in the second quarter were at the annual rate of $31.4 billion compared with last summer's $38 billion.

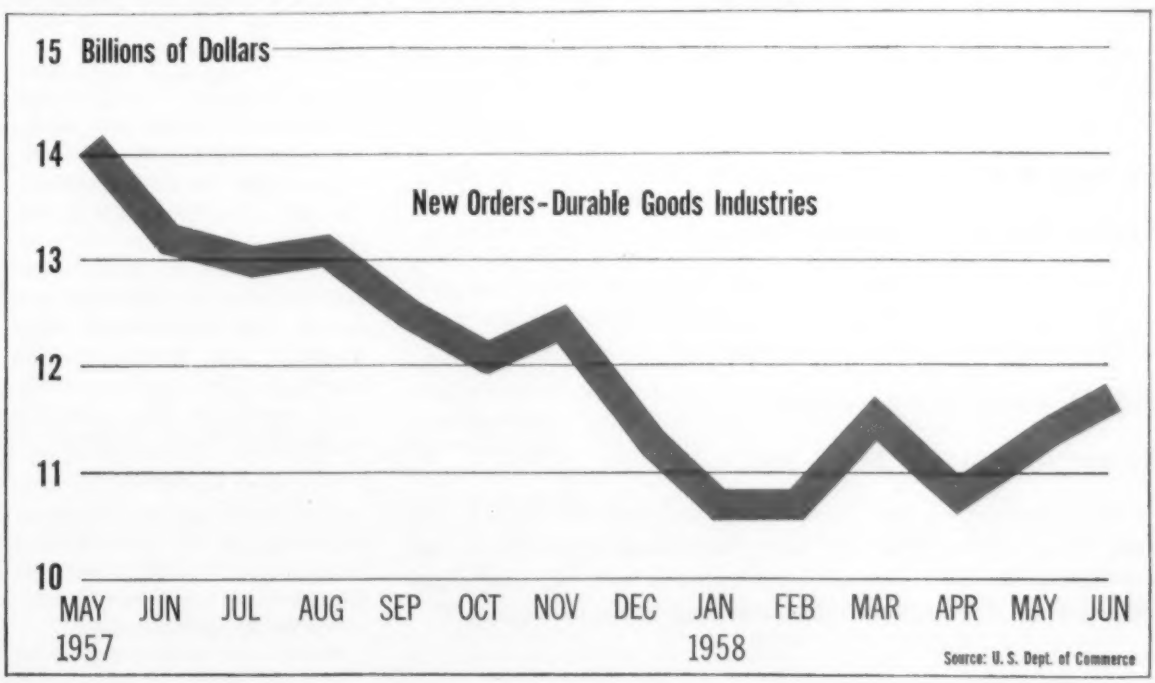
Big Question Mark — Another big question mark, of course, is automotive. The carmakers are hopeful their new models will open the purse strings of the buying public. But they won't have their answer for at least another month. Meanwhile, they've slowed their production lines to a walk.

Still, there was no denying that business has improved. In some cases the pickup was so slight that it amounted to little more than a "feel" that the recovery was beginning to take hold. But in other cases, the evidence was more concrete. For example:

Bright Spots—In steel, the ingot rate was close to 60 pct of capacity and was still moving up. Even with higher prices, steel buyers apparently are just beginning to reverse their inventory-cutting policies. But part of the steel pickup was due also to an improved business situation for steel users.

While still considerably behind

Durable Goods: After the Storm, the Silver Lining



Metalworkers Speak Up On the Business Outlook

D. H. McIver, Vice President—Sales

Ex-Cell-O Corp.:

"We seem to be around the corner generally, but not for capital goods programs. If there is a resurgence in the automotive field, I think we'll see reactivation of a number of programs which were postponed."

G. S. Peppaitt, President

Federal-Mogul-Bower Bearings, Inc.:

"Present indications point to increased volume in the fourth quarter, particularly in the automotive, farm implement and earthmoving equipment industries—provided, of course, that these customers are not affected by major strikes."

F. P. Maxwell, Vice President

Rockwell Manufacturing Co.:

"For the first time in years, July was a better month than June for power tool sales. Orders jumped 25 pct in July and the improvement continues in August."

David C. Chaplin, President

Rosedale Foundry and Machine Co.:

"We have been operating five days a week since May 1, but business has not opened up yet. People seem to be holding back. I do not look for a big upturn until after Labor Day."

Howard N. Maynard, President

Snyder Tool & Engineering Co.:

"The machine tool industry hasn't seen bottom yet. Orders are going up, but backlogs are still dropping. It looks as though we still have a year in which to roll with it, then possibly another year in which to climb out."

E. P. Hawkins, Vice President

Revere Copper and Brass, Inc.:

"We reached our low point about April 1, and have seen a pickup since then. I feel it will continue to be better, but not exciting. While our volume business is with the automotive industry, other areas such as electrical appliances and plumbing have shown a welcome upsurge in business."

last year, Russell, Burdsall & Ward's index of shipments for the industrial fastener industry is moving up. Fasteners go into a wide cross-section of industrial products.

Non-ferrous Better—The tempo of non-ferrous metal buying has quickened. Kennecott Copper Co. has stepped up mining operations from four to five days a week at its Western operations. A leading lead and zinc producer reports that July sales were up 25 pct over June; and he looks for a further 10 pct gain in August. September sales should be up as much as 30-40 pct, he believes.

In aluminum, Reynolds Metals reports an improved sales picture, believes the industry hit bottom early this year. The Magnesium Assn. looks for a slow, steady improvement.

Auto Suppliers Gloomy—The outlook for firms directly dependent on automotive was as cloudy as that for the auto industry itself. Comments from such firms in the Detroit area reflected this uncertainty.

"We have a pretty cloudy picture now," said the president of an automotive and sheet metal stamping company. "As an automobile supplier it doesn't look good to us until we get a 6-million-car year, and that won't be next year."

"I'm Pessimistic"—Said a manufacturer of machine tool equipment and aircraft parts: "We seem to be around the corner generally, but not for capital goods programs."

The president of a machine tool and machinery company had this to say: "The machine tool industry hasn't seen bottom yet. I'm pessimistic about machinery industry in general and capital spending by the auto industry in particular."

"We Don't Know"—A manufacturer of brass, copper, and aluminum strip for the auto industry commented: "We can't answer anything until we know what the auto companies are going to do."

In the heavy equipment field, the

news was both good and bad. First half earnings of some held up well largely because of heavy backlogs at start of the year. But the worrisome thing is that these backlogs have been dropping. An optimistic note: Backlog decline in second quarter was not as much as in first for some companies.

For example:

Better Times Ahead — Blaw-Knox Co. reported a backlog drop of $17 million, or 12 pct, in first quarter. The decline in second quarter was about 5 pct. Said company president W. Cordes Snyder, Jr.: "some upturn may be expected as the year advances."

G. G. Beard, president of United Engineering & Foundry Co., says inquiries have picked up. He feels capital spending is receiving more active consideration by business generally.

Pick-up Confirmed — This appraisal is confirmed by H. G. Coffey, president of the Aetna-Standard Engineering Co.: "Business is being placed. Our proposal department is working overtime. Both domestic and foreign markets show improvement." Aetna-Standard's backlog is up from six months ago, the big pickup coming in July.

This is the way Westinghouse Electric Corp. sizes up the situation: Current developments point to an economic recovery in the third and fourth quarters. Yet, so far as orders of Westinghouse products are concerned, its prediction of early this year still holds—orders in 1958 will be about 7 pct below actual bookings for 1947; and for 1959, incoming business will about equal orders for '57.

Roadbuilding and Farm Equipment—In the Midwest, the farm and roadbuilding equipment makers are feeling better as sales show continued improvement.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., The IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

Fringe Pay Climbs

▪ Fringe benefits tacked on employers' payrolls are growing larger each year. In 1957 they cost manufacturing industries an average of 20.3 cents of every payroll dollar, according to the Chamber of Commerce of the U. S.

Tallying the results of its 1957 survey of 656 manufacturers, the Chamber found that fringe benefits had increased substantially since 1947, when 12.9 cents on every payroll dollar was paid out in fringes.

Vacations Cost Most—Of the 19 different types of fringe benefits considered in the survey, vacation pay was the most expensive single item. It amounted to 3.9 pct of industry's payroll in 1957.

Other major fringe costs were: pension plans, 3.1 pct; paid rest periods, washup time, etc. 2.4 pct: life insurance, hospitalization, and medical benefits, 2.3 pct; pay for holidays not worked, 2.2 pct; Old Age and Survivors Insurance, 2.0 pct.

Some Prefer Cash — Fringe benefit payments vary widely from industry to industry, but this should not be interpreted to mean that some companies are laggard, the Chamber points out, adding that "In many cases both the employer and workers may prefer to have income reflected entirely or chiefly in the pay envelope."

Manufacturing industries paid somewhat less in fringes than nonmanufacturing companies, whose fringe payments last year were 24.2 pct of total payroll.

Comparison—But manufacturing firms had higher fringe payments than nonmanufacturing firms for Unemployment Compensation, workmen's compensation, insurance, and vacations.

Nonmanufacturing firms had higher payments for Old-Age and Survivors Insurance, pensions, discounts on goods and services purchased from the company, holiday pay, and sick leave.

When a worker is hired today or a new wage contract is agreed upon, summarizes the Chamber, the wage rates established no longer measure the cost of hiring labor. The number of hours actually worked no longer measure the number of hours for which the employer must pay.

How Fringe Benefits Add Up in Metalworking

Fringes as pct of payroll	Primary Metals	Fabricated Metals	Machinery	Electrical Machinery	Transportation Equipment	Instruments & Miscellaneous
Required by law	4.2	4.4	3.7	4.3	4.3	3.6
Pensions, medical	6.1	5.9	6.2	4.7	6.5	5.1
Paid rest periods	2.0	2.6	2.3	2.8	2.6	2.3
Pay for time not worked	6.6	6.6	6.9	6.2	6.8	7.5
Profit sharing, bonuses	1.3	1.0	1.3	2.3	0.9	2.1
Total all fringes	20.2	20.5	20.4	20.3	21.1	20.6
Fringes as cents per payroll hour	47.2	46.3	51.1	43.4	53.7	45.0

Source: Chamber of Commerce of the U. S.

Why 'Big Steel' Is Successful

Ten-Year Drive for Efficiency Is Paying Off

Here's the story behind U. S. Steel's improved profit position.

Organization and a sustained push for better performance are primary reasons. — By G. J. McManus.

▪ A 10-year drive for efficiency was climaxed last week when U. S. Steel announced its first half earning.

In the first six months of this year, U. S. Steel earned $135.6 million for a return of 8.5 pct on sales. In a year when other mills were barely scraping by or sinking in the red, the Corporation paid a full dividend and had money left to reinvest in the business.

How U. S. Steel Did It—The figures confirmed what many people have suspected for some time. U. S. Steel has changed from a high cost to a low cost mill. Within the steel industry and outside, the question is being asked: How come? Why is U. S. Steel now more profitable than most other mills? Why is it seemingly more efficient?

From the Corporation itself come many answers:

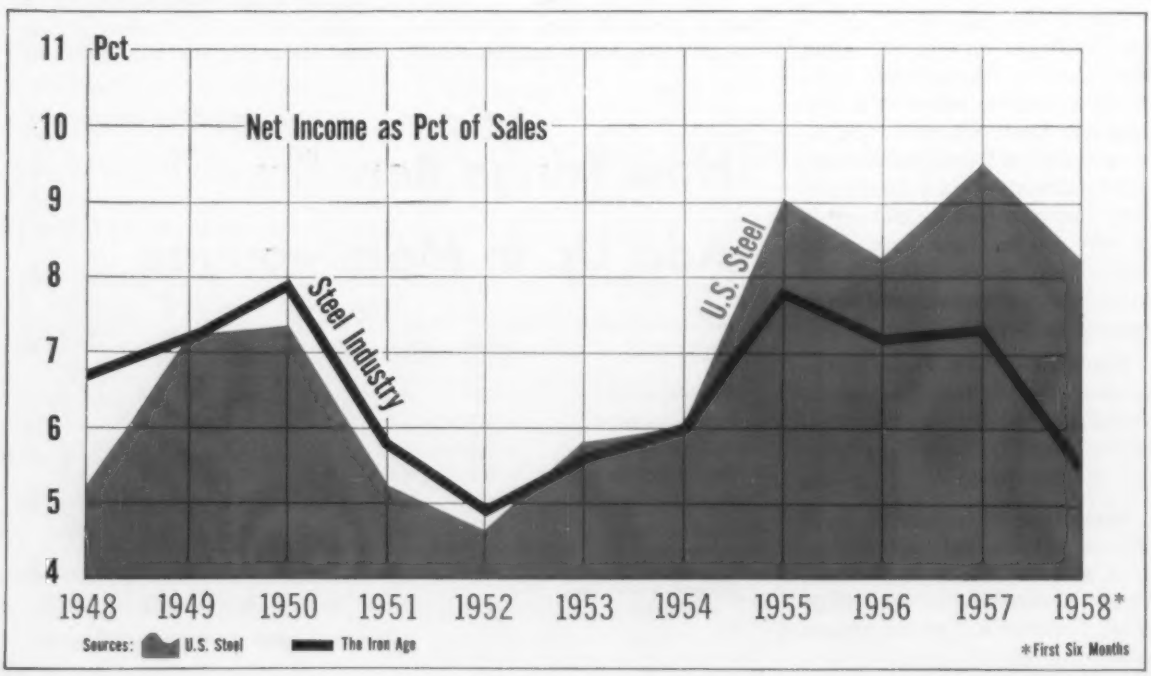
"Manpower," says one long-range planner. "They can pay guys like me to spend full time thinking about 1970. Most of the others are living from day to day."

Not Size Alone—Size is a factor but size alone does not explain the recent profit history of U. S. Steel. The Corporation's share of total steel capacity is actually shrinking. It once represented 66 pct of total capacity; last year the share dropped under 30 pct for the first time.

Moreover, size would tend to be a handicap in the current market situation. In the slump of 1954, U. S. Steel had a lower return on sales than five of the seven largest mills. Its 6 pct margin was about the average for the whole industry.

Big Earner — In 1955 and in 1956, U. S. Steel had good years, returning 9.0 pct and 8.2 pct on sales. It bettered the industry average in both years. It was the top earner in relation to sales among the seven biggest mills.

U. S. Steel Earnings Reflect Accent On Efficiency



Last year, U. S. Steel returned 9.5 pct on sales. Product mix played a part in this showing. Plates, structurals, tinplate, and oil country seamless remained in good demand after other products went sour. U. S. Steel had the diversity to put its ingots into these markets.

Sheer Efficiency—This year it is hard to attribute the Corporation's performance to anything but sheer efficiency. As a fully integrated, highly administered organization, it has had to carry a huge overhead. As the biggest of the tonnage mills, it had the biggest adjustment to make in a year of small orders, flexible service, and fast delivery.

Yet in the current market U. S. Steel has been able to line up business and make money.

Well Organized—Most observers feel the answer lies in an organized, sustained push for better performance. This takes in individuals, equipment and methods. Of the three, the first is probably most important.

U. S. Steel's management has kept its people active by translating profits directly into individual earnings. It has the conventional incentive system for production workers. It has long had incentive programs for top management and production supervisors. It is now attempting to extend inventives to middle management people outside direct production.

Esprit de Corp — Apart from these specific measures, U. S. Steel has promoted a dynamic spirit by its selection of people. By design or by accident, it has manned key management posts with men who understand the danger of excessive caution.

"A research program that is 100 pct successful is much too conservative," says research vice president James Austin.

"You're not getting the most out of your hands if you don't go down once in a while," says marketing chief Bay Estes.

"We don't build fences around our plants," says purchasing vice president Ralph Moffit.

Equipment Policy—In its property spending since the war, U. S. Steel has emphasized efficiency and modernization rather than straight expansion.

All in all, the Corporation estimates it added 10 million tons in the postwar period just by improved equipment and methods. This does not include the Fairless and Columbia-Geneva additions.

As an example of the kind of thing that is being done, the Corporation has increased its blast furnace capacity by about 7 million tons since 1929. But the number of blast furnaces has dropped from 99 to less than 85. The capacity of one hot strip mill has increased from 800,000 tons a year to 2 million tons. Openhearths are bigger and fewer.

Big Push Continues—The modernization push continues today at boom rates. In the second quarter, U. S. Steel property expenditures were at the annual rate of $480 million. This was slightly under the $514 million spent last year and well over the $311 million spent in 1956.

At the end of the second quarter, U. S. Steel had authorized projects totalling $770 million. This was $100 million more than the authorizations at the start of the year. It is only 25 pct less than the total spending planned by the steel industry for 1958.

Success Story: How U. S. Steel Does It

Equipment

In its property spending since the war, U. S. Steel has emphasized efficiency and modernization rather than straight expansion. Example: In one program calling for addition of 2.4 million tons of capacity, only one new steelmaking unit is included.

Research

It has tripled its research force since World War II, now has 1000 men working on various projects. Pilot plant facilities include a blast furnace, sintering plant, direct reduction plant, hot reversing mill, plastic sheet line, and an electrolytic tinning line.

Cost Control

Its basic standards group has identified and measured every activity from ore mining to finished steel shipments. It is using 19 computers of the IBM 650 type plus several larger models. With 75 engineers trained in the use of computers and 25 full-time specialists on tap, the company is in a position to realize even greater savings from computer use in the future.

Incentives

In addition to the usual incentive system for production workers, the company has long had incentive programs for top management and production supervisors. It is now attempting to extend incentives to middle management people outside direct production.

Financing

Its big postwar expansion has been largely on a low-cost, pay-as-you-go basis. After spending $3 billion from 1946 through 1956, its annual charge for interest and other debt costs was up only about $3 million. In the same period, about 65 pct of its capital spending came from wear and exhaustion funds against 55 pct for the entire steel industry.

Coal Equipment Sales Will Grow

New Spending Wave Expected Next Year

During 1957 coal producers spent $750 million on mining and handling equipment.

But gains in coal sales and use may well trigger another burst of capital goods buying. —By K. W. Bennett.

▪ King Coal is a prime capital goods buyer. In 1957 the industry spent an all-time high—$725 to $750 million—for new mines, mining equipment, buildings, barges, materials handling equipment, steel, and railroad equipment. This year coal producers will spend roughly $500 million, less of it on mines, more of it on process equipment.

Among the top 10 U. S. coal producers, one has already begun spending an earmarked $18 million for new capital equipment and mines—most of it for equipment. The outlay covers barges, buildings, mining machinery, and transportation equipment. This big buyer has budgeted $10 million for 1959 expenditures, but knows this outlay will go up at least half again that much before the new year begins.

Good Future Market — With existing U. S. coal mines about 50 pct modernized, according to coal industry sources, there's plenty of business left in equipping them—and considerably more new business to come.

A smaller producer, still one of coal's Big Ten, is deciding whether to spend $8-9 million to open a new mine. At least two more companies are working through 1958 budgets in excess of $10 million. One spent $40 million in '57, is currently hacking its way through a $20-25 million capital outlay.

Coal hit a capital spending peak in 1957. The big boost began in 1954. The next wave is calculated to begin in 1959-1960, but events of the past six months suggest that it may come sooner.

PRIME MOVER: Capable of grabbing up 105 tons of overburden at a gulp, this giant stripping shovel, known as "Big Paul, the King of Spades," is working a Peabody Coal Co. mine in Illinois. It's first of three large Marion excavators to be owned or operated by the company. Peabody also uses a Bucyrus-Erie giant at a Kentucky mine, which scoops up 80 tons in one bite of its big dipper.

Coal Sales Rising—Bituminous shipments hit a low of 29.9 million tons in April, but they are coming back strong. Coal's big customers are electric utilities, steel mills and chemical plants, industrial and cement plants, and retail consumers, in about that order.

When steel mills are busy coal production increases. In 1957, U. S. Steel was rated the third largest coal producer and Bethlehem Steel was in fifth place. U. S. Steel, getting coal for it own operations, was second biggest producer in 1955 and 1956.

Utility Use Gains—More important to the outlook of the coal industry generally: Utilities are stepping up their power generation rate. The electric generating industry used about 35 pct of the U. S. coal consumed last year. Peabody Coal, second largest U. S. coal producer, sells 80 pct of its product to electric utilities. Forecasters believe that in the next 20 years, 70-75 pct of U. S. coal output will go to the utilities.

The short-range gains scored by coal producers in the past several

months are expected to encourage the coal industry's rate of capital outlay during the rest of 1958 and in 1959.

Long-Range View — The long-range outlook for coal is even better. As a low-cost, stable price fuel, coal looks better this year than ever before to its principal customer, the utilities. From a fuel consumption of .917 lbs of coal per kilowatt hour in 1957, utilities have improved their efficiency rate to .901 lbs per kilowatt hour in early 1958. Gas sales to utilities rose 5.2 pct while coal consumption fell by 2 pct. But coal's old arch-enemy, oil, slipped by 5.8 pct in the first six months of this year.

The summer air - conditioning peak load on utilities in recent years shows up in higher coal consumption by electric generating plants during the warm season.

Closing Cost Gap—The up-trend in both gas and oil costs are boosting coal in utility men's eyes, since coal prices have remained stable. Gas was 7.5 cents per million BTU less than coal in 1951, but only 4.7 cents less in 1956. Coal already competes with oil and is moving close to gas. In areas remote from natural gas production, coal is now in a preferred price position.

Louisiana Power and Light, Gulf Power, and Arkansas Power and Light have all indicated such a interest. El Paso Natural Gas is approaching coal use by another route, gas produced from coal. At least two commercial gas-from-coal plants are already moving off the drawing boards in Great Britain. Gas-from-coal plants are in operation in Germany, Australia, and Africa.

Self-Improvement—There's work on an additional boost for coal—irradiation of powdered coal to give it a higher BTU rating. The Denver, Rio Grande, & Western Railroad has the process under study. The statement has been made by a rail line that powedered, irradiated coal could cut its fuel bill by an annual $400,000.

IMPROVEMENT: Shipping rooms of fastener makers, like Russell, Burdsall & Ward, are starting to buzz as larger orders are being taken.

Fasteners Head Up

▪ Industrial fastener makers believe they are on the recovery road.

A survey of buying and inventory patterns by Harry O. McCully, senior vice president of Russell, Burdsall & Ward Bolt & Nut Co., shows a slight pickup started in May, accelerated through June and continued at a better-than-expected rate through July.

Larger Orders—Pittsburgh Screw & Bolt Co. president Donn Greenshields reports, "In the last 10 days there are indications that this thing is swinging upward." He says the upturn is coming in the form of larger orders, mostly for immediate use, but some inventory rebuilding.

RB&W's McCully calls inventory replacement one of the prime reasons for the brighter sales picture

Present buying patterns point to a second half sales volume at about the June rate. This would put total sales for 1958, on a dollar basis, somewhat above 1954, but 20 pct less than the high hit in 1957.

Index Off—Fastener sales index figured by RB&W puts first half 1958 volume at 120 pct of the 1947-49 average. Total for 1957 was 166, and 165 for 1956.

The big reason for the sag in 1958 has been the sharp cutback in automotive buying. One fastener maker is looking for release of new models to bring a pickup before September is over. RB&W expects an upturn in Detroit buying in August as well as September.

Sales Picture—Farm equipment sales are running about 5 pct ahead of last year. Jobber sales are off, but have recovered somewhat in the last two months.

High strength bolts have been getting a bigger play, and are the major factor boosting construction buying in line with 1957.

Venezuela: A $1 Billion Market

Its Industry Wants More Industrial Equipment

Oil and iron ore have changed this once quiet country into a booming industrial hub.

It's one of the few nations that has a favorable trade balance with the U. S.

▪ Venezuela's open-door trading policy makes it one of the most attractive markets in Latin America.

Last year this bustling nation of 6 million persons passed Mexico as U. S. industry's No. 1 customer in Latin America. It bought over $1 billion in goods from U. S. companies in 1957—and machinery, vehicles, and metal products accounted for $706 million of it.

Steel Products Tops — What Venezuela wants is not consumer goods, but industrial equipment. A breakdown of the types of industrial equipment Venezuela's young and vigorous industries are buying from the U. S. is given in a study made for Creole Petroleum Corp. by Econometric Specialists, Inc.

Construction, excavating, and mining machinery purchases from the U. S. totaled $126 million last year, Creole reports. Motor vehicles accounted for $107 million, industrial machinery $87 million, and electrical equipment $67 million. Steel mill products accounted for $132 million and metal manufacturers $77 million.

Getting Started — There are no signs that the Venezuelan boom is slowing down. Currently underway are several big industrial and public works programs. They include a $400 million steel mill and hydroelectric plant on the Orinoco at Puerto Ordaz, a 98-million, 6-mile-long bridge across Lake Maracaibo Narrows, a $28 million refinery at Puerto Cabello, and a 210-mile pipeline between the Barinas oil basin and Puerto Cabello. There are many other projects underway.

Breaking into the Venezuelan market is easier than some might suspect.

According to the Consulate General of Venezuelo in New York:

"Americans will find that doing business in Venezuela does not involve any more red tape than a New Yorker would find if he intended to operate in any other state of the U. S."

There is nothing in Venezuelan legislation preventing withdrawals of profits, capital, or dividends, the Consulate points out.

First Hand Advice—"The best way to find out if there is a market for your product in Venezuela is to go down there yourself," advises Herbert Walmsley, secretary, The Venezuelan Chamber of Commerce of the U. S. "But first it would be a good idea to contact a bank that has a Latin American department," he adds. The bank will provide you with introductions to businessmen in Venezuela.

Three banks which are active in Venezuelan affairs are the Chase Manhattan Bank, First National Bank of New York City, and Guarantee Trust Co. of New York.

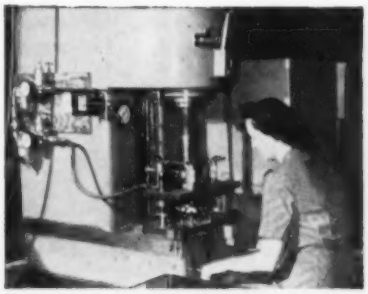
The Venezuelan Consulate General in New York has a number of lists that may be useful to prospective exporters of certain products.

Equipment Makers' Growing Stake in Venezuela

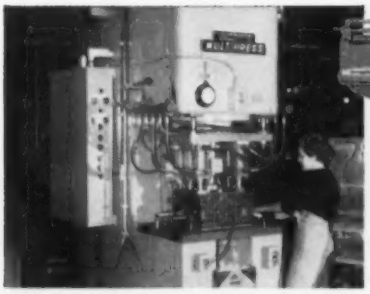
Product Group	1952-53 (Exports—thousands of dollars)	1957
Electrical machinery, apparatus	39,105	67,050
Engines, turbines	9,673	16,831
Construction, mining, oil field machinery	42,190	125,566
Machine tools	714	701
Metalworking machines	1,676	2,785
Textile, sewing, shoe machinery	2,718	2,143
Other industrial machines	33,423	83,632
Office machines	2,567	3,054
Printing, bookbinding equipment	715	698
Agricultural machinery, implements	2,086	2,885
Total	141,854	305,345

Source: Econometric Specialists, Inc.

Which of these MULTIPRESS ideas will save you money...NOW?



Toy maker forms 1000 parts per hour . . 8-ton Multipress forms metal toys faster, at less cost for Mattel, Inc.



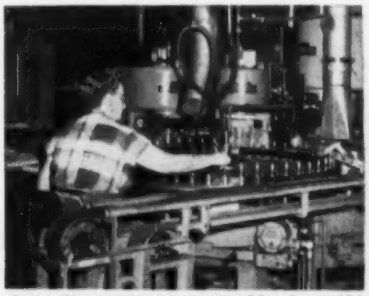
Motorola speeds production...with 100-ton Multipress that precision-punches up to 450 holes at a time in plastic TV chassis bases.

Dormeyer triples production of food mixer parts . . . cuts scrap loss, too, with 8-ton Denison Multipress—12-station index table.

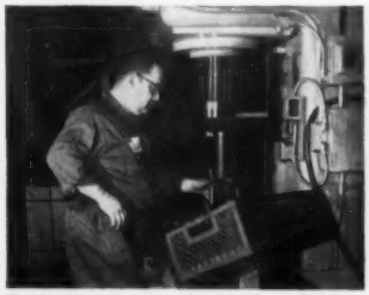
Waterman boosts output 800% with 1-ton Multipress that "angles" precision C/C pen parts fast, at low cost.

Cuts cost 73% on sub-assembly of specialty products at George S. Thompson Corp with 4-ton Multipress. Savings—11¢ per unit.

Prints Electronic circuits 3 times as fast at Barry Process Co. with 4-ton Multipress. Controlled timing and pressure assure uniform carbon ink deposit on each printed resistor.



Auto-lite automates assembly of over 150 different types of spark plugs with a battery of 3 Multipresses operating around a 48-station index table.



Production up 33% at Cleveland Graphite Bronze—where 25-ton Multipress compresses soft carbon cores at the rate of 100 per hour.

Trimming rubber flash twice as fast... 4-ton Multipress with 6-station index table trims flash from 2400 molded rubber parts per hour. Old method called for 3 operations.

Time and money savings like these are only a few of hundreds that Denison Multipress can help you make in keeping ahead of competition today.

But modern competition means more than simply faster production. That's why *Multipress plus-benefits* are so *important.*

Multipress on your job can mean larger tool and die life . . . less scrap . . . higher product quality . . . minimum maintenance . . . extra operator safety. *Multipress can give you the competitive edge.*

Isn't it time *you* looked into Multipress? Your Denison Hydraulic Specialist can show you where and how Multipress will pay off best on your next job.

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POWERFUL: Lift truck makers are keeping pace with heavy industry. Example: Gerlinger M-26 flexes its hydraulic muscles to carry a 13-ton deck hatch cover from final assembly to an outside storage area.

NICB Reports On Strike Benefits

Strike benefits are paid by 43 of 78 national unions surveyed by the National Industrial Conference Board.

But actual payments and the way they are determined vary widely. Seventeen unions pay flat sum benefits ranging from $5 to $40 per week. Median is $18 per week.

Payments — Most of the remainder pay on a sliding scale based on one or more of the following; individual need, marital status, number of dependents. All alone in its benefit setup is the union of airline pilots. They get 5 pct of their preceding year's salary each month during a strike. Minimum benefit is $350 per month. Maximum is $650.

Eligibility was found to be normally a very simple matter. Key general qualification is that the strike must be approved by the national organization.

No Benefits—Of the unions that don't have strike benefits, one is composed mostly of government workers who operate under a no-strike policy, and most of them are small, with less than 10,000 members each. But several are reported to be quite large, one with declared membership of over one million.

The unions surveyed claim membership of 11,075,560, about 60 pct of the overall union membership in the U. S. Unions paying benefits have 7,463,656 members.

Delay Postage Penalty

The Post Office Department is postponing until October 31 the 5-cent penalty on mail bearing insufficient postage.

Earlier, the Post Office had planned to start collecting the penalty charge on August 1. But the postal officials decided the mailing public needs a few months in which to get accustomed to the new rates.

Here's how the penalty procedure will work. Starting October 31, the recipients of mail bearing insufficient postage have to pay the postage due plus the 5-cent penalty. But the recipients have the option of refusing the mail. Mail that is refused will be returned to the senders, if a return address is shown.

Aluminum Record Use

The new Air Force Academy, Colorado Springs, Colo., opening this fall, will use more architectural aluminum than any other building ever constructed in the U. S.

Its 5 million lb easily tops the former record holder, the Alcoa Building in Pittsburgh, which uses in excess of 2 million lb.

Fund Disclosure Bill

Chances appear good, as Congress races down the home stretch toward adjournment, for passage of a mild though controversial measure requiring public disclosure of employee welfare and pension fund operations.

The bill would affect funds run by management as well as unions.

Russian Translations

About 60,000 pages a year of key Soviet scientific and technical journals are now being made available in England to U. S. scientists and engineers.

Now in print are 53 English editions of Russian journals, 4 extensive series of translated abstracts of scientific papers, and 4 series of partial translations of important Russian journals.

Supporting the program are the National Science Foundation, several other government agencies, and six commercial translating and publishing firms working without government funds.

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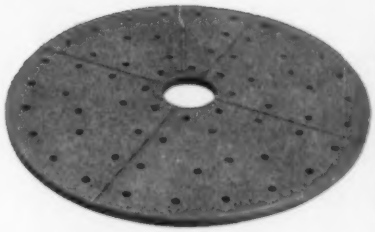

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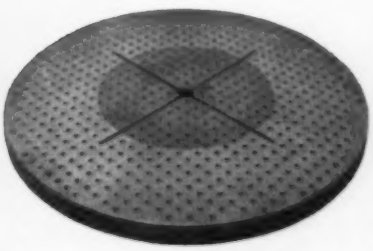
Smooth faced Wire-Lokt discs for general purpose grinding

Narrow face disc with corrugations for cool cutting

Cylinder wheels for use on most popular types of vertical spindle grinders



Combination grade and face with radial lines for even wear and better coolant distribution

Cylinder wheels with square centers for fast stock removal on large areas

range of disc sizes

	diameter	thickness
regular disc	10″ to 48″	1″ to 3″
segmental disc	53″ to 84″	1″ to 3″
cylinder wheel	11″ to 32″	4″ or 5″
square center cylinder wheel	18″ & 20″	4″ or 5″

For a review of your flat surface grinding operations, call your Gardner Abrasives Specialist today.

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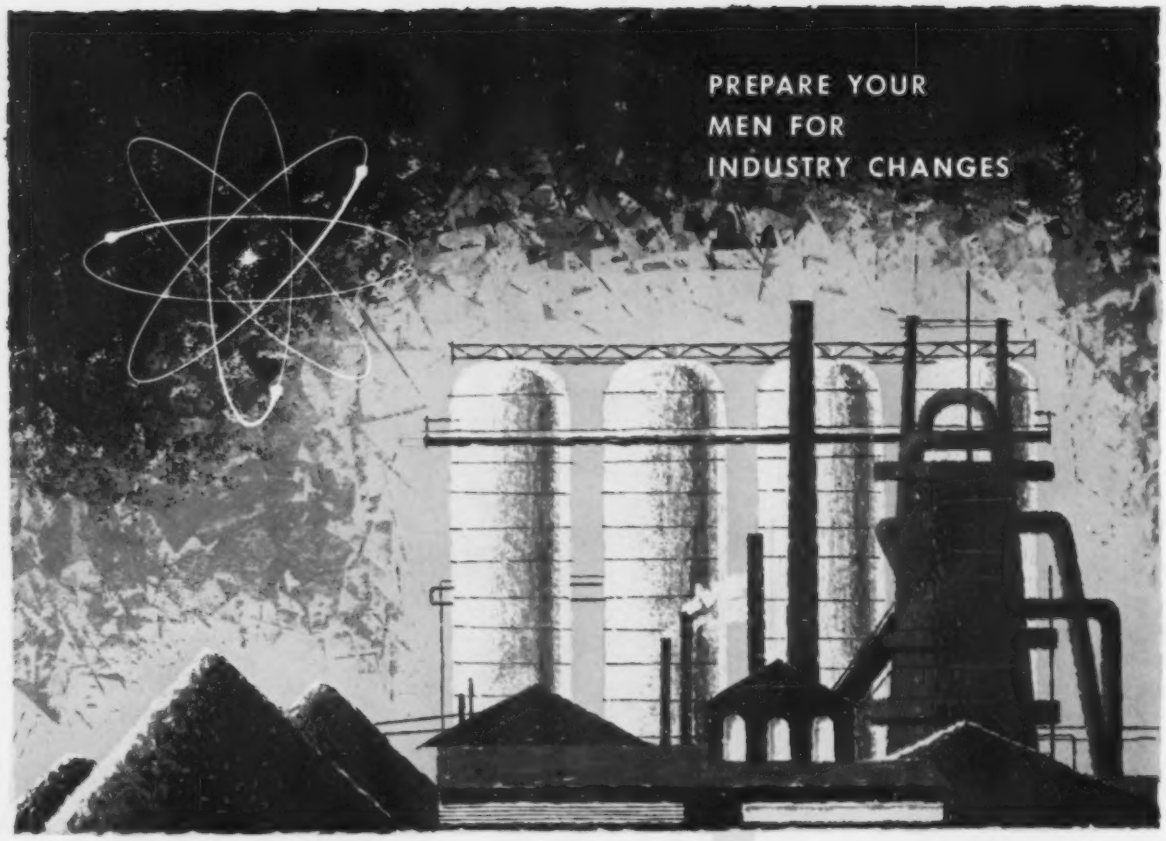

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Angus L. Walker

A Worldly Approach to Business

Worldwide operations can multiply an executive's management problems.

But they may also increase his company's profits and strengthen international relations.

▪ When strapping Angus Lightfoot Walker was named president of Rheem Manufacturing Co. late in 1956. he had his work cut out for him. Rheem was skidding to a pretax loss for the year of $16 million, first in the company's 32-year history.

Management organization had failed to keep pace as Rheem added aircraft, auto parts, gas ranges, plumbing fixtures, and other lines to its established steel container and water heating business.

Ready for Recovery—Mr. Walker's new management team quickly revamped corporate philosophy, leadership, operations, and financing. The company soon edged back to profits. In 1957, earnings rebounded to about $3½ million before taxes. Sales by 17 U. S. plants hit a record $188 million.

Like many other firms, Rheem felt the pinch of the current recession, but Mr. Walker regards the situation today as temporary. He points out: "Our basic financial and organizational problems are solved. We are ready to take full advantage of national economic recovery as it occurs."

Heads World Operations—Born in England and educated in New Zealand and Australia, six-foot-four Gus Walker was employed "down under" in 1937 to manage Rheem's first overseas company, Rheem Australia Pty Ltd. From 1951 to 1956, he was in charge of all Rheem international operations. His legacy: 19 affiliated and associated plants abroad with 1957 sales of $34 million.

ANGUS L. WALKER: We value highly our arrangements abroad.

Under his direction, an executive management committee has been set up to make key operating decisions. The seven-man group accomplished a herculean task. Since late '56, they completed a switch from geographic to product divisions, installed qualified people in key jobs, dropped unprofitable product lines, transferred production lines, closed excess plants, set realistic sales and profit targets, and overhauled debt structure.

World Trade Viewpoint — To keep up with all this, Gus Walker maintains a hectic, world-circling business schedule. He leaves the U. S. every six months for a four-week marathon of inspection trips and meetings abroad. He visits most of the 17 U. S. plants at least once a year.

A trustee of the International Chamber of Commerce, Mr. Walker comments:

"We value highly our arrangements with our business partners abroad, not only for the profitable results of these ventures, but also for the exchanges of talent and for the lasting and cordial friendships that they encourage."

Graph-Mo® dies cut downtime 50% on deep draw for round vacuum cleaner!

ENGINEERS at The Hoover Company had a tough problem in getting that round vacuum cleaner shape in the new Constellation. The two circular dies that form the hemispheres often galled, picking up bits of the steel being formed. This scored the dies, marred the finished parts. Production had to be shut down while the dies were repolished. And extra polishing of the hemispheres ran up costs still more.

After studying the problem, Timken Company metallurgists recommended dies made from Graph-Mo®—a special tool steel developed by the Timken Company. Results were outstanding. The new Graph-Mo dies cut downtime 50%. The combination of free graphite particles and diamond hard carbides in its structure make it outwear other tool steels 3 to 1. Production rolled smoothly and refinishing time was cut.

Graph-Mo machines 30% easier than conventional tool steels. And its uniform response to heat treatment eliminates distortion—saves time and money in lots of tough jobs.

Graph-Mo is one of four graphitic tool steels developed by the Timken Company. If you would like more information about their uses in dies, punches, gages and machine parts, send for the new Timken Graphitic Steel Book. The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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Has Industry Really "Sold" Itself?

The furore over the steel price rise holds a lesson for all industry.

It may be time for industry to re-examine its public relations effort from the standpoint of selling its case to the masses.

▪ There's a lesson for all industry in the furore over the recent rise in steel prices. It raises the question of whether industry has really "sold" itself to the American people.

It's easy to say that Sen. Estes Kefauver is "playing politics" when he rakes the steel industry over the coals for its pricing policies. On the other hand, industry should ask itself why the senator and other politicos consider steel and industry generally fair game for such tactics.

Industry An Easy Mark—Is it because the politicians know they are on safe ground with the majority of the people? It would seem that is the case, because who, apart from the industry which happens to be on the "hot seat" at the moment, stands up to be counted on industry's side? Even other industry takes a neutral position, at best.

In the case of steel, the ones who scream loudest about a price rise are the ones who look to the industry for their livelihood. Take David J. McDonald, president of the United Steelworkers, as a prime example. Mr. McDonald has been notably successful in bludgeoning steel firms into substantial wage and fringe concessions for his members. Yet, instead of defending the industry that his members live on, he spends considerable time and effort criticizing it for trying to get back part of the employment cost increases.

Job To Be Done — Perhaps industry should devote more time to selling the great mass of people, including its own employees, on the justice of its position. Industry apparently has done a good job of convincing people that it must make a profit in order to live. Still, too many people seem to feel that a profit can be realized by some sort of financial legerdemain. Industry's message just doesn't seem to seep down into the grass roots.

When it's on the spot with some elements in Washington, the steel industry usually does a good job of defending itself. But in such cases it usually stands alone. And it usually finds itself in a defensive rather than an offensive position. The big job facing the industry at the moment would seem to be to persuade others, notably its own employees, to come to its defense.

Ike on Labor and Inflation

Labor Should Listen — Regardless of their politics, labor leaders should consider seriously President Eisenhower's comments to the effect that they may be doing their members a disservice over the long run by forcing excessive wage hikes.

Mr. Eisenhower pointed out that these perennial wage increases and their effect on inflation are jeopardizing the value of the pension benefits that are now a standard part of most labor contracts.

Industry's Stake—Industry has a stake in the pot, too: If continued inflation works a hardship on retired workers, union leaders won't hesitate to ask for still higher pension benefits. That's the way the union top brass thinks. The pressure from members makes them think that way.

Labor has yet to demand a cost-of-living clause in pension agreements. But it's not because it hasn't thought of it. Besides, several of the larger unions have already negotiated improvements over original pension contracts. And one of their chief talking points was inflation. Labor leaders are seldom at a loss for reasons to improve the lot of their members—retired or active.

Profits Improve In Second Quarter

The First National City Bank of New York reports that half year corporate reports indicate that the decline in profits was checked in the second quarter.

"Reports issued to date by 809 corporations show combined net income after taxes in the second quarter of $2.2 billion, a decrease of 28 pct from the second quarter of 1957 but practically unchanged from the first quarter of 1958," says the bank.

Steel industry earnings also followed this pattern in second quarter, reflecting improved market conditions over first quarter.

AUTOMOTIVE

Imperial Moves Into New Plant

Many Engineering 'Firsts' Dot Production Line

The move is part of Chrysler Corp.'s long-range plan to set the Imperial apart.

Emphasis is placed on quality control and smooth assembly operations.—By H. R. Neal.

■ Changeover in the automobile industry doesn't always mean just a change in styling or engineering characteristics of cars. This year, for Chrysler Corp.'s Imperial Div., it also means a change in location.

When production of 1959 models began Aug. 12, the division was turning out Imperials on its own assembly line for the first time in its 32-year history. Imperial's new home in Dearborn, Mich. is part of De Soto Div.'s former facilities.

Long-Range Plan—The plant is tooled to produce Imperial, Imperial Crown, and Imperial LeBaron automobiles at the rate of 27 an hour, and in almost any combination of optional equipment.

C. E. Briggs, corporation vice president and general manager of the Imperial Div., says opening of the plant "marks a further step in the corporation's plan, inaugurated several years ago, of setting the Imperial apart from other cars."

Leads Style—Beginning in 1955, Imperial was given its own styling treatment. In 1957 it was established as Chrysler's style leader and no longer has any parts interchangeable with Chrysler cars.

What has happaned to De Soto's operations? De Soto has moved in with Chrysler Div. at the company's Jefferson plant in Detroit—a merger made possible by the high degree of interchangeability between these two cars.

Complete Plant Overhaul — Mr. Briggs says the separate Imperial facility will allow the division to "maintain the highest standards of quality, taking advantage of specialized skills."

Toward this end a number of quality control and manufacturing innovations have been instituted, along with a complete renovation and re-equipping of the plant.

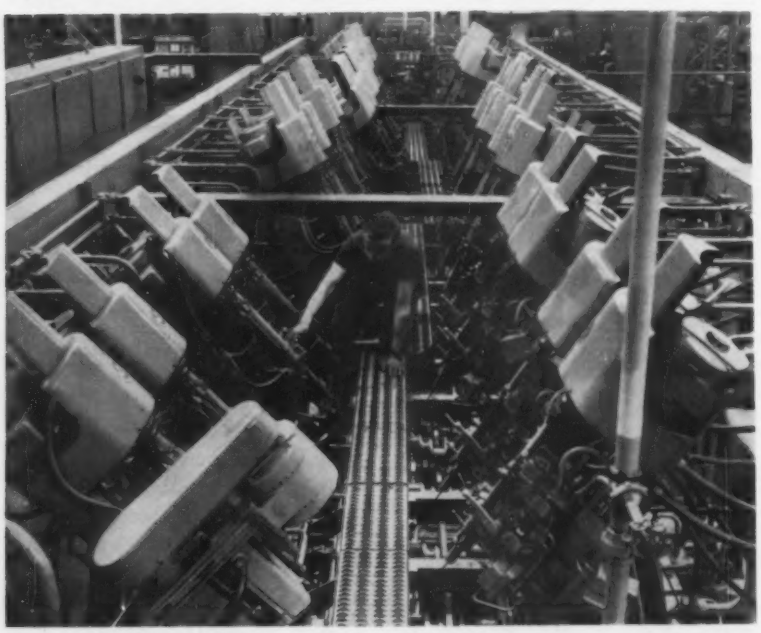
Showpieces—Among innovations is a new static body control switching system—first of its kind in the automotive industry, according to plant manager G. T. Poirier. It is designed to automatically assign a proper body to its companion chassis as both components move toward final assembly.

A master control panel located along the assembly line monitors six body feeder lines. As the chassis moves down the line, the bodies, which have been previously arranged in proper sequence, are automatically selected from one of the feeder lines and placed on proper chassis.

Mr. Poirier says the new system eliminates congestion of work loads in any one area along the body-drop portion of the line through pin-point body spacing.

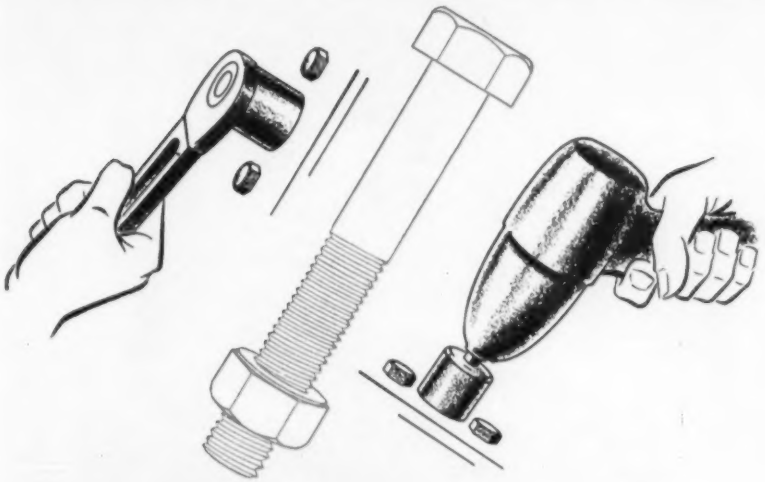
Conveyors Important—Specially

Special Tools for High Speed Production



DRILLING FOR OIL: A special 52-ft long, transfer-type machine tool at the new Ford Motor Co. engine plant, Lima, O., automatically drills the entire oil system in a crankshaft in one continuous operation.

ECONOMIC FACTS ON FASTENERS



TIGHTEN UP FASTENERS TO TIGHTEN DOWN ON COSTS

- **Too little tightening wastes fasteners' strength—invites failures**
- **Proper application saves on material and production costs**

Go the limit in tightening bolts. You'll find this not only more economical, but safer too. For the strength of a rigid connection depends not on how strong a bolt is, but rather on how much *clamping force* it exerts when tightened.

Example: A bolt good for 20,000 pound load is tightened to just 5,000 pounds tension. Believe it or not, *joint* strength from that bolt would be only 5,000 pounds.

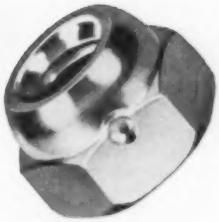
Case History: Earthmover's bucket kept coming loose. Bolts were upgraded progressively, finally to alloy steel and to 1¼-inch size . . . to no avail. Trouble was they still were not being adequately tightened. Bigger wrench, more torque and standard ¾" RB&W high tensile bolts stopped problem, saved money.

Obviously, the more of the fastener's strength you use, the smaller it can be. That's why RB&W High Tensile Bolts are such good buys. They have more strength to give. They cost less than the larger machine bolts or bright cap screws they can replace. Moreover, smaller bolts mean smaller holes to drill or tap. Smaller holes can often mean reduction in size of fastened members.

For a penetrating, productive value analysis of your fastening operations, make use of an RB&W Fastener Man. You may be surprised at the cost cutting his experience makes possible. Russell, Burdsall & Ward Bolt and Nut Company.

R B & W
114th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver; Fargo. **Distributors from coast to coast.**



Economical lock nut

Staking opposite sides of these RB&W acorn nuts deforms threads for a positive grip. It also puts middle of nuts slightly out-of-round, for a spring tension locking effect. They're designed for applications such as outdoor furniture, where anchoring fasteners is more important than solid seating. Available in aluminum, steel, silicon bronze.

These all-metal nuts can also be furnished in double chamfered style. Since they lock with their middle threads, they can be turned onto screw from either side.

Silicon bronze fasteners combine desirable features

Silicon bronze offers the highest conductivity in fasteners able to withstand high stresses. It resists corrosion, stays free from season cracking, too. It makes ideal fasteners for electrical use where tensile strength is important; or for corrosive environments.

One of the first to develop such fasteners, RB&W cold works them for tensile strength and for clean, well formed threads that don't seize. Oval bolts, hex bolts and nuts, and U bolts available. Specials can be developed.

RB&W FASTENERS—STRONG POINT OF ANY ASSEMBLY

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for the Best in Copper Products

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Make sure your copper is Hussey Copper—and be sure! That's the advice of seasoned buyers who know Hussey Copper and Brass quality and finish to be an industry standard for the best.

Supplies are adequate and conveniently obtained from seven complete warehouses or in mill quantities. Make sure it's Hussey Copper—and be sure!

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ROLLING MILLS AND GENERAL OFFICES
PITTSBURGH 19, PA.

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

Automotive Production

WEEK ENDING	CARS	TRUCKS
Aug. 9, 1958*	66,425	15,138
Aug. 2, 1958	62,846	16,276
Aug. 10, 1957	118,864	18,279
Aug. 3, 1957	119,323	29,833
TO DATE 1958	2,642,029	531,294
TO DATE 1957	4,031,907	699,592

*Preliminary Source: Ward's Reports

constructed conveyors are important in Imperial's new manufacturing. One is a high speed 180° conveyor, also one of the first installed in an automotive assembly plant. Actual rate of speed of the specially-constructed conveyor is said to be on an average of 13 times as fast as the main conveyor line. High speed on the turn prevents blocking of plant supply routes by assembly line units.

Another is a conveyor designed to facilitate charging and testing of air conditioning units. It will allow 100 pct installation of air conditioning units in Imperials.

New Inspection Methods—Quality control will receive greater emphasis than ever before at Imperial through a new program which "rates" workmanship and performance of product. Quality checks are made before, during, and after assembly.

There are 32 quality control stations and nearly 100 quality control personnel. "Fact gatherers" on the production line continuously collect information pertaining to quality of product. These facts are fed to a control group of analytical engineers, who analyze and chart over-all quality trends. Corrective recommendations are fed back to production or pre-production areas.

Many New Ideas—A number of checking devices located along the assembly line aid quality control personnel in their job. They include:

A static water-test booth to spot check the efficiency of the water-test booth located in the final line.

A "hot room" where temperature and humidity are controlled to check on the efficiency of air conditioning units under varying temperature conditions.

An automatic electronic leak detector to detect refrigerant leakage in air conditioning unit lines.

A power steering fixture checks centering and evenness of torque of the power steering unit.

Wheel alignment is checked by a front end and height alignment fixture which also checks for proper height, front and rear.

The Finals—After regular checking of a completely assembled Imperial, two important tests remain to be made. First, every car is run through a water-test booth. The 25-ft-long booth is equipped with 118 jet nozzles, 22 of them directed to the underside of the vehicle. Imperial engineers say the volume of water released during the test period is equivalent to a rainfall of 252 in. per hour.

When cars have successfully passed all tests through the final line, they then undergo an individual road test. Road test inspectors drive the vehicles over a variety of bumpy, rolling, and smooth road surfaces while brake, engine, transmission, axle, and over-all handling characteristics are checked.

In the prestige automobile class where customers demand quality, it looks as though Imperial intends to supply it.

M-E-L Completes Reorganization

M-E-L Div. of Ford Motor Co. effected a major reorganization of its general sales office aimed at stimulating and coordinating sales of its six car lines.

The division is responsible for U. S. sales of Mercury, Edsel, Lincoln, and Continental cars made here and two imported lines—the German Taunus and English Ford.

In announcing personnel realignments, General Manager James J. Nance said: "This is the final step in a series of moves to consolidate the division's activities that have been progressing in various areas since it was formed last January."

THE BULL OF THE WOODS

Feeling
"profit pinch"?

Talk to

Snyder

TOOL AND ENGINEERING COMPANY
3400 E. Lafayette, Detroit 7, Michigan

Special Machine Tools with Automation for More Than 30 Years

Senator Calls for Higher Taxes

Says U.S. Must Either Cut Outlays or Up Income

Neither party will talk about it. The reason: Election campaigns are underway.

But Sen. Bush, safe until '63, points to impending deficits and slight chance for less spending. —By G. H. Baker.

▪ Higher taxes next year are a real possibility. The steady rise in the cost of national defense is to blame. Revenues are away off, due to lagging production and sales.

Right now, neither political party wants to talk about tax hikes. Election campaigns are under way, and nobody wants to frighten the voters with talk of smaller paychecks. Campaigners in both parties report there's plenty of disenchantment among voters over Washington goings-on. So all unpleasant subjects are poison, to be avoided.

Senator Speaks—One member of the U. S. Senate who is speaking freely on this subject, however, is Prescott Bush, Connecticut Republican. His seat is safe until 1963, so he can afford to call the shots as he sees them.

Mr. Bush says bluntly, Washington faces cumulative deficits for 1958, 1959, and 1960 of more than $20 billion unless the Congress and the Administration have the courage to sharply increase taxes.

Consequences—If taxes are not raised, more inflation will result. And in periods of inflation, the "rich get richer and the poor get poorer," Mr. Bush claims. The rich can invest in stocks, commodities or real estate to ride with rising prices. But the poor are usually tied to their bank accounts or life insurance, and are hard pressed.

National defense now costs us about $40 billion a year. The Pentagon says this figure is going to have to climb to about $70 billion "within a relatively short time."

And, since Congress lacks the courage to cut the budget by that much, the only alternative is to increase taxes by that amount, Bush observes.

Plan for Congress—Here's what he says next year's session of Congress should do:

Set up a government commission to find where to increase taxes.

Order the White House to seek price stability.

Permit the President to veto separate items in appropriations bills. (Now, the President must buy everything or reject the entire bill.)

Use a single federal appropriations bill.

Consider consumer credit controls.

Find out if industry or unions have too great concentrations of power.

U. S. Stands Alone On Red China Trade

Britain and other Free World allies recently decided to loosen their self-imposed restrictions on trading with the Red Chinese. But the U. S. is standing pat.

British Advantage—This is good news to Britain and other Western European nations, who fear U. S. competition in East-West trade.

The U. S. has agreed with other Free World nations, however, to trim substantially the list of commodities barred from shipment to the U.S.S.R.

New Life for Renegotiation Law

Holding On — The government isn't going to give up its World War II renegotiation authority.

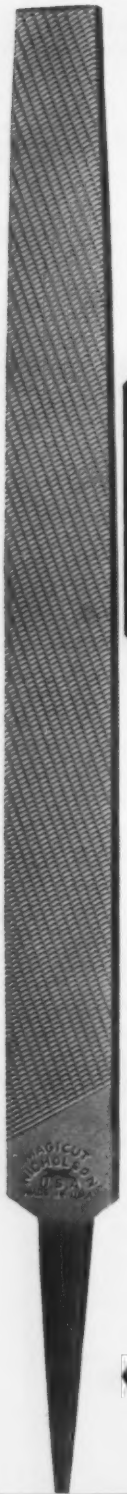
The House Ways and Means Committee, with congressional adjournment rapidly approaching, is recommending extension of the Renegotiation Act for another six months past its scheduled Dec. 31 expiration. The purpose is to give the lawmakers time to rewrite it next year.

Space Contracts — Congress is expected to go along with the recommendations, including an amendment to broaden the act to cover contracts awarded by the new space agency created this year.

The Administration had asked for a simple two-year extension of the existing act.

Right of Appeal—The Committee also favors changing the law to permit appeal on renegotiation decisions on excess profits to the U. S. Court of Appeals. At present, firms which receive an adverse decision cannot appeal past the U. S. Tax Court.

Among the changes expected out of next year's study will be more lenient guides for determining excess profits, and some formula to prevent firms from being penalized for efficiency.



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BLACK DIAMOND U.S.A.

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A FILE FOR EVERY PURPOSE

Jetliners Lift Industry Hopes

New Orders Will Keep Planemakers Busy for Years

The fate of manned aircraft isn't so bleak as appeared when missiles first streaked across the horizon.

New jetliner services will help boost the aircraft industry's backlogs.——By R. R. Kay.

▪ If you're selling materials, machine tools, and services to the aircraft industry you may be assured that business will be coming your way into the 1960's.

Missiles are making more headlines today, it's true, but there's still plenty of life in the conventional aircraft market. Manned aircraft will be the biggest seller this year and next.

Backlogs Are Healthy—The industry on the Coast will ring up $4 billion in sales for 1958 and it looks as if 1959 sales will top that. Airlines throughout the world have on order 1000 planes—turbojet, turboprop, and piston—for delivery over the next several years. More than half of these craft are to be made by West Coast companies. It adds up to about $2 billion worth of business.

The Pentagon will pick up a multi-billion-dollar tab for aircraft, engines, and related procurement. And billions more will go into research and development of aircraft, missiles and space technology.

Jetliners to Help—Adding zest is the start of the jet age in airline travel. Both American Airlines and Pan American World Airways will introduce jet service in October. Recently, American Airlines ordered 50 more jetliners from Boeing and Convair for $135 million.

If the airlines succeed in getting easier financing arrangements for new equipment, more orders should be on the way. The Civil Aeronautics Board financing policy has been a stumbling block for U. S. flag lines.

Another area of hope is rates. If the airlines get a hike in rates which they have asked for, the picture would change overnight.

Portland's Boom

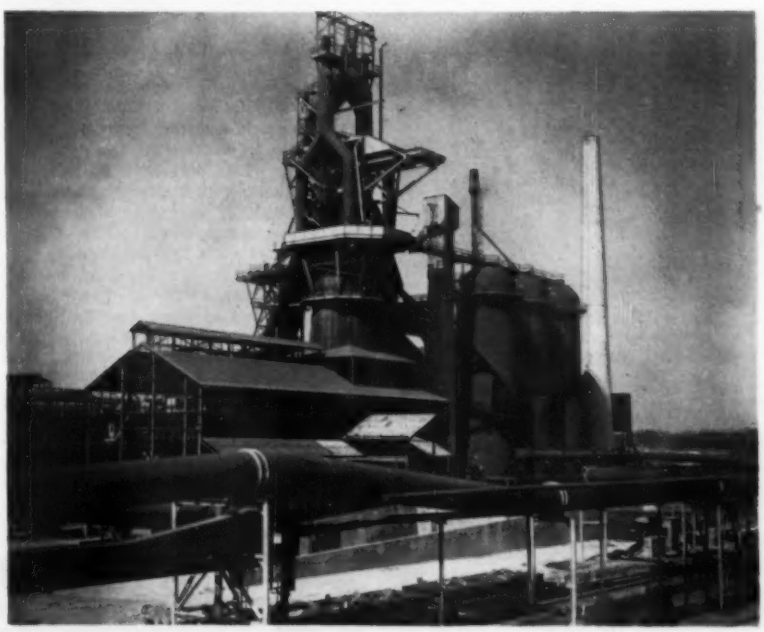
It looks as if Portland, Ore. will have the biggest building boom on record.

Some $400 million is going into all types of construction there: commercial, manufacturing, public buildings, utilities, hospitals, schools, churches, and highways.

Major natural gas pipeline projects to cost about $6 million are in the works. Plans call for service up the Willamette Valley as far south as the Eugene-Springfield area. It eventually will extend east to The Dalles, where Harvey Aluminum just opened its 100-million-lb-a-year aluminum reduction plant.

Hopes are high that new industries will spring up along the route of the new pipeline.

Biggest Blast Furnace in the Farwest



ALMOST FINISHED: Nearing completion at Kaiser Steel Corp.'s Fontana, Calif. plant is this giant 232-foot-high blast furnace. The fourth at the plant, it's designed to produce 1750 tons of pig iron a day.

ACHESON

dispersions digest

Reporting uses for

dag® BRAND DISPERSIONS

COLLOIDAL GRAPHITE, MOLY-SULFIDE, VERMICULITE, AND OTHER SOLIDS

COLLOIDAL GRAPHITE PROVES IDEAL AS FORGING LUBRICANT

Lubricants to be suitable for use on forging dies for steel and nonferrous metals must be stable under the high temperatures and pressures involved. Besides providing the most effective lubrication for hot-work dies, 'dag' brand dispersions act as coolants. Total advantages gained by using Acheson colloidal graphite, as described in the following applications are: improved quality of the forging, reduced die wear, lower production costs, and improved working conditions.

'dag' dispersion improves quality, cuts costs for Utica Drop Forge and Tool Division. With a large share of their capacity being devoted to the forging of jet engine blades, Utica finds it must maintain high production, consistently high quality, and a competitive price. Blade-forging dies have a comparatively short life due to rapid wear caused by the thinness of the blades, the high pressures required to form the heat-resistant alloys used, and the closer tolerances required. They have found that *every one* of these requirements can be met by using 'dag' colloidal graphite dispersed in water as their forging lubricant. First, it must withstand temperatures which range from 1950-2200° F. Sprayed on both halves of the die it forms a tightly adhering, smooth, microscopically-thin film that aids metal flow and substantially protects the die itself. In many cases, this has meant fewer finishing operations and therefore higher production, due to the improved quality of the blades. A compressor blade formerly required four blows from upset to finish, with an intermediate heat and tumbling operation. Now, this operation is done in only two blows from original heat. The savings . . . $16,000 a year on this part alone! Add increased life of these precision dies and you can appreciate what a 'dag' colloidal graphite dispersion means to efficient forging. Utica finds water-based dispersions best for press forging, and colloidal graphite in oil the best lubricant for hammers.

Operator spraying colloidal graphite on both top and bottom die halves before forging jet engine blades at Utica Drop Forge and Tool Division. Kelsey-Hayes Company.

Concentrated Acheson colloidal graphite being applied to die surfaces before they are put in service.

Pre-treatment and operational use of 'Aquadag' greatly increases die life. Before putting dies into service, a prominent midwestern manufacturer finds that by preheating them to about 250° F. and brushing on a dispersion of colloidal graphite in water, they have generally *doubled* the working life of their dies. When used as an operational lubricant, die wear on a truck body brace die was proved by actual measurements to be only *one-third* the former rate. And this was with 'Aquadag' diluted 1 to 240 in water! . . . Ample proof of the wide coverage, film toughness, lubricity, and basic economy of a "dag' brand dispersion.

Colloidal graphite is resistant to heat, does not react with the die steel, and the extremely small particle size permits an actual adsorption to the metal surface. A water carrier eliminates the usual smoke and fumes thus affording better working conditions and keeping die temperatures down. After the carrier evaporates, a dry graphite film remains which, besides being an efficient lubricant, protects the die from the accumulation of abrasive dust and scale. Die life is extended from 8 to 14 days and production increased by the reduction in downtime.

Specially compounded, ready-to-use forging lubricants containing 'dag' colloidal graphite are available from industrial lubricant suppliers. If you have a forging lubrication problem, it may pay you to call in your Acheson Service Engineer.

Write for additional information contained in Acheson Bulletin No. 426. Address Dept. 1A-88.

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How to Buy Numerical Control

It's a Problem More Shops Will Have to Face

In the last few years numerical control has come out of the labs to become a growing factor in metalworking profits.

This tells you how to pick a winner.—By E. J. Egan, Jr.

▪ Think back to numerically controlled machine tools two and three years ago. You didn't see many. And those were probably experimental models aimed at the aircraft industry. Certainly the average jobbing machine shop didn't figure them into its picture.

Since then, numerical control has come up fast as a job-proved technique. Lathes, drill presses, jig borers and grinders, milling machines, turret punch presses, and automatic welders are being guided by punched tapes and cards. They're bringing better quality control and lower finished-part costs to many short runs.

Changing Scene—The question is no longer: "Will job shops ever be able to afford and use numerically controlled machines?" Now, many a shop owner is starting to wonder when he'll install his first one, and what kind it will be.

General Electric's Specialty Control Dept. suggests a five-step approach for the metalworking executive who's willing to look into the potential benefits of numerical control:

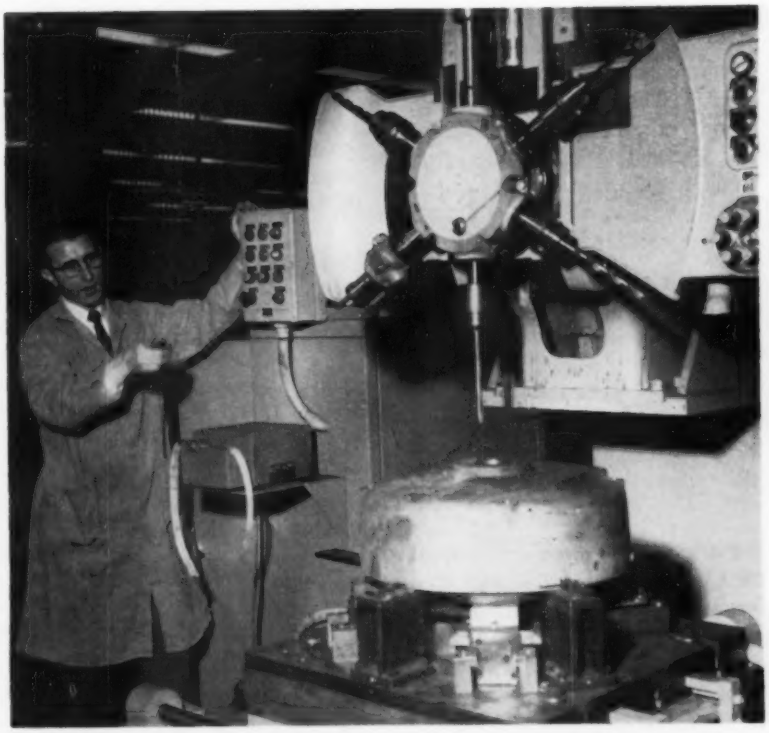
Check present costs to spot possible uses.

Decide exactly what a machine will have to do.

Consult machinery and control makers.

Weigh all considerations.

Plan for optimum use.



TAP WITH TAPE: A few inches of punched tape controls the holes in many shapes and sizes of General Electric motor end bells.

GE stresses checking all costs. But most promising areas for savings are direct labor, jigs and fixtures, scrap and rework. Hidden costs turn up on piece-rate jobs, too. Operators may push machines too hard, but numerical control insures optimum usage. This means less maintenance and longer machine and tool life.

Just Enough—In deciding what the machine should be able to do, don't go for excess speeds, feeds, or capacities. It adds to the cost.

Once you know what you want, call in a reputable machine builder and a numerical control specialist. They may simplify your application and save you money.

Final Check—When you finally have a quotation, evaluate the equipment again in terms of every factor you can think of. Put everything down in dollars, and you either have a reason to buy or not to buy.

When and if you do buy a machine, see that it benefits everyone possible. Maybe your engineers can spruce up your product design. You'll do less drafting, too, on parts to be machined via numerical control. Also tell your inventory control people they can ease up on heavy stocks.

INDUSTRIAL BRIEFS

Wilson Span — Phoenix Bridge Co., subsidiary of Barium Steel Corp., has a contract of over $2.8 million to fabricate and erect steel for the Woodrow Wilson Memorial Bridge. It will be built over the Potomac River at Alexandria, Va. and 4,100 tons of steel will be required for this 1700 ft long bridge.

For Voltage Control—An order for a giant silicon rectifier has been awarded to I-T-E Circuit Breaker Co., Philadelphia. The order, from Stauffer Chemical Co.'s Niagara Falls, N. Y., plant is for I-T-E's Unitron rectifier.

Word Gets Around — An electronic communication system which uses perforated tapes to transmit and receive messages has been inaugurated by The Babcock & Wilcox Co. It will link 17 Tubular Products Div. plants and direct sales offices over a 3,824-mile network.

Patriotic Motives — Americans for Constitutional Action has been formed to "aid in the promotion and preservation of the American System of Constitutional Government." Admiral Ben Moreell of Jones & Laughlin Steel Corp. is chairman of the board of trustees of the new organization.

"As soon as the b-o-s-s goes, we'll go out for a s-m-o-k-e."

New Stainless Capacity—Installation work at Jones & Laughlin Steel Corp.'s new Stainless and Strip Div. at Louisville, O., is nearing completion and pilot production is now underway. The $17 million plant will have a capacity of 3,000 tons monthly of stainless steel sheet and strip in both the 300 and 400 series.

Social Security Benefit — Westinghouse Electric Corp. will furnish $1.5 million in electrical equipment for a new four-story Old Age & Survivors Insurance building under construction in Baltimore, Md. Scheduled for completion in 1960, the contract is from The Howard P. Foley Co. of Baltimore, electrical contractors for this project.

A Lungful, Plus—A new oxygen facility will be in operation this fall serving the Clairton Works of U. S. Steel Corp. The new plant will provide 22 million cu ft of oxygen per month. Oxygen will be used in various processing practices, product conditioning, and for other metallurgical purposes.

Drawing Out Process—Production of wire from steel rods has been added to the operation of H. K. Porter Co.'s Leschen Wire Rope Div., St. Louis, as part of their expansion program recently completed.

Housing Project—Westinghouse Electric Corp. has $1.7 million worth of missile shelter orders from Douglas Aircraft Co. The shelters will provide all-weather protection for the U. S. Air Force's Thor intermediate range ballistic missile. Douglas Aircraft is prime contractor for the Thor.

Universal Ambition — General Motors, Callery Chemical Co., and Thiokol Chemical Corp. have entered into a working agreement aimed at developing advanced devices in the field of guided missiles and space travel. The companies will apply their cooperative efforts toward the attainment for the U. S. of world leadership in the field of astronautics.

Pointing the Way — The Navy Bureau of Ordnance awarded a $3.7 million contract to Western Electric Co., Inc., New York, for production of weapon direction equipment. TERRIER-armed aircraft carriers now under construction will utilize the weapon direction equipment to be produced by Western Electric. TERRIER is an all weather surface-to-air guided missile.

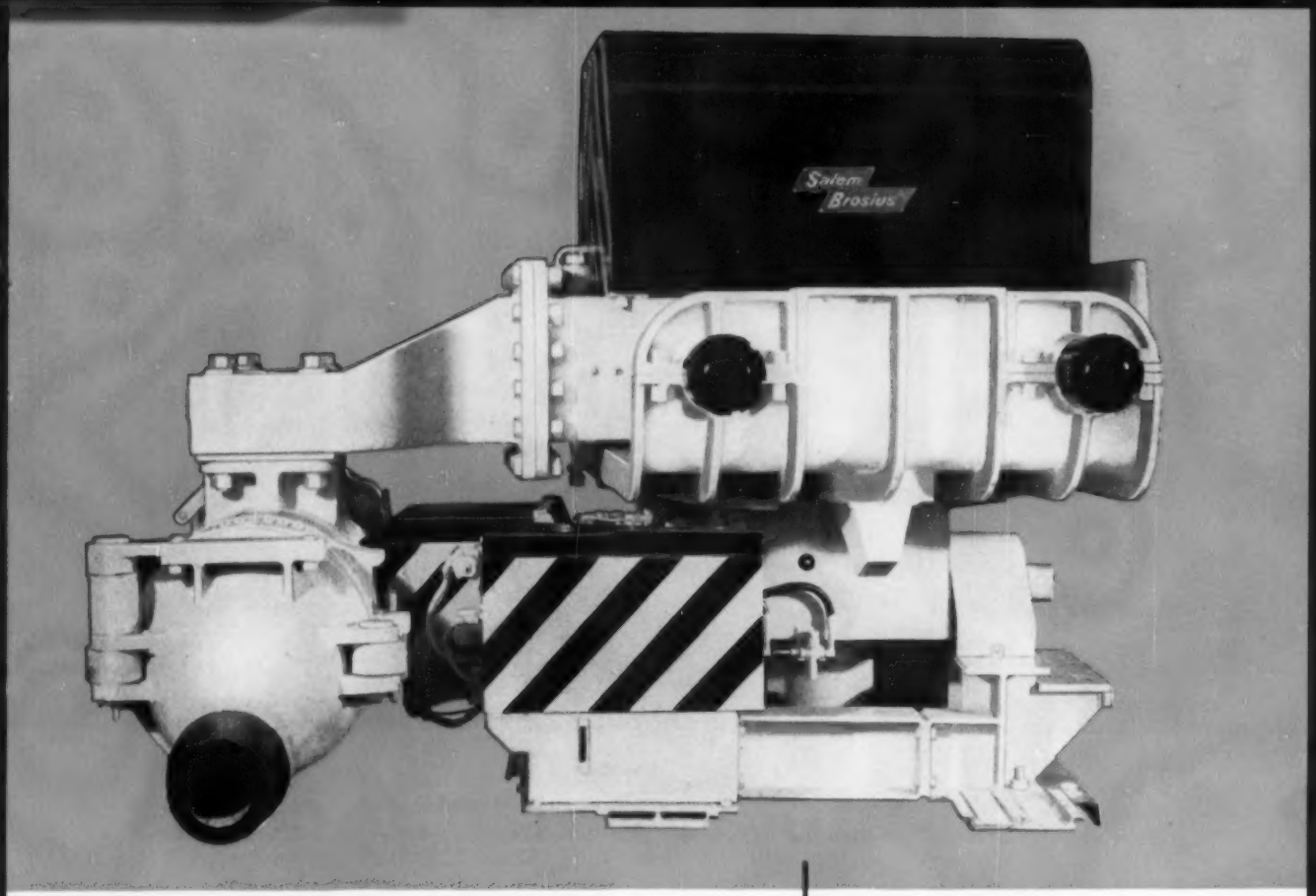
New Home — American Air Filter Co.'s New York City branch has changed its address. It is now located at 292 Madison Ave., New York 17. The office formerly was located at 70 E. 45th St.

Consolidation—Beckman Instruments, Inc., acquired the assets of its subsidiary, Helipot Corp., which will operate solely as a division of the parent firm. The company recently announced the sale of its Helipot building in Newport Beach, Calif. and the transfer of Helipot operations to new facilities at the company's headquarters in Fullerton. The move is scheduled for completion by Sept. 30.

Countdown Double Check — Beckman Instruments, Inc., has receipt of a $150,000 contract from Sundstrand Turbo, a division of Sundstrand Machine Tool Co. It calls for an electronic system that will determine automatically the efficiency of the accessory power supplies of guided missiles prior to launching.

Windfall—An agreement to purchase Trade-Wind Motorfans, Inc., Rivera, Calif., has been announced by Robbins & Myers, Inc., Springfield, O. The transaction is expected to be consummated within the next 30 days. The acquisition of the business and some of its assets is described as a cash transaction in excess of $1 million.

Closer Knit — In a move to expand its marketing activities in the textile field, The Dow Chemical Co. has consolidated the sales organization of The Dobeckmun Co.'s Lurex Yarn Div. and The Dow Textile Fibers Dept.



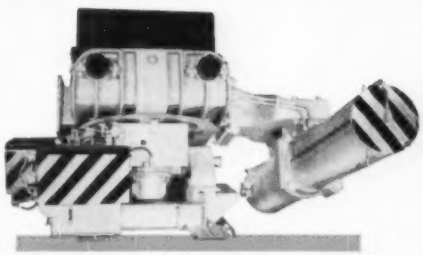
New . . .

All-hydraulic clay gun meets modern blast furnace needs

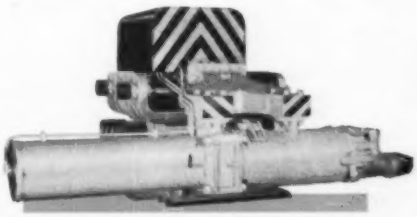
After years of design and testing, Salem-Brosius now offers the iron-making industry a completely new hydraulic clay gun compatible to the trend toward greater capacity and higher pressure furnaces. The new gun embodies the following completely unique set of features:

- Standard nozzle pressures up to 800 psi (higher nozzle pressures optional)
- Optional 12 or 15 cu ft clay barrel capacity
- Positive gun lock in tap hole with no latches or connections to the furnace
- Positive, accurate gun path travel
- Automatic or single stage cycling
- Push-button control
- Pedestal base with no mountings on furnace
- No relative motion between clay barrel and base
- No gears, tracks, pinions, or racks to wear
- Suitable for either right or left hand operation
- Removable, renewable liners in clay barrel
- All motions hydraulically actuated and electrically controlled
- Non-inflammable hydraulic fluid eliminates fire hazards

For further information concerning this gun, write to Salem-Brosius.



Barrel in tilted position. Travel path is fast and accurate—nozzle locks into tap hole.



Construction is rugged and simple for long-life and easy maintenance.

SALEM-BROSIUS, INC.

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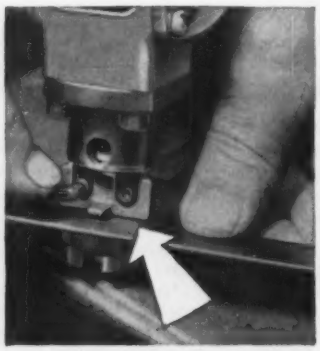

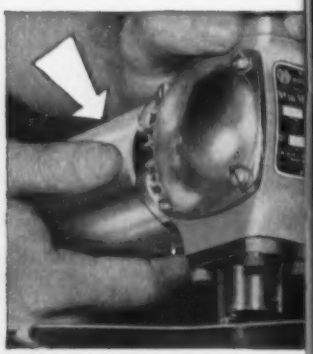

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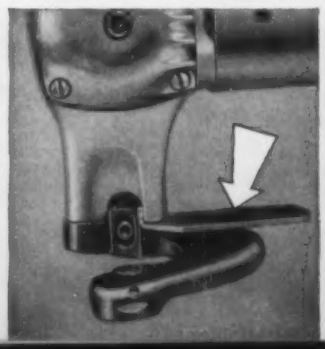

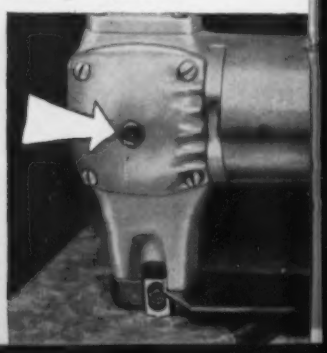

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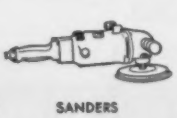

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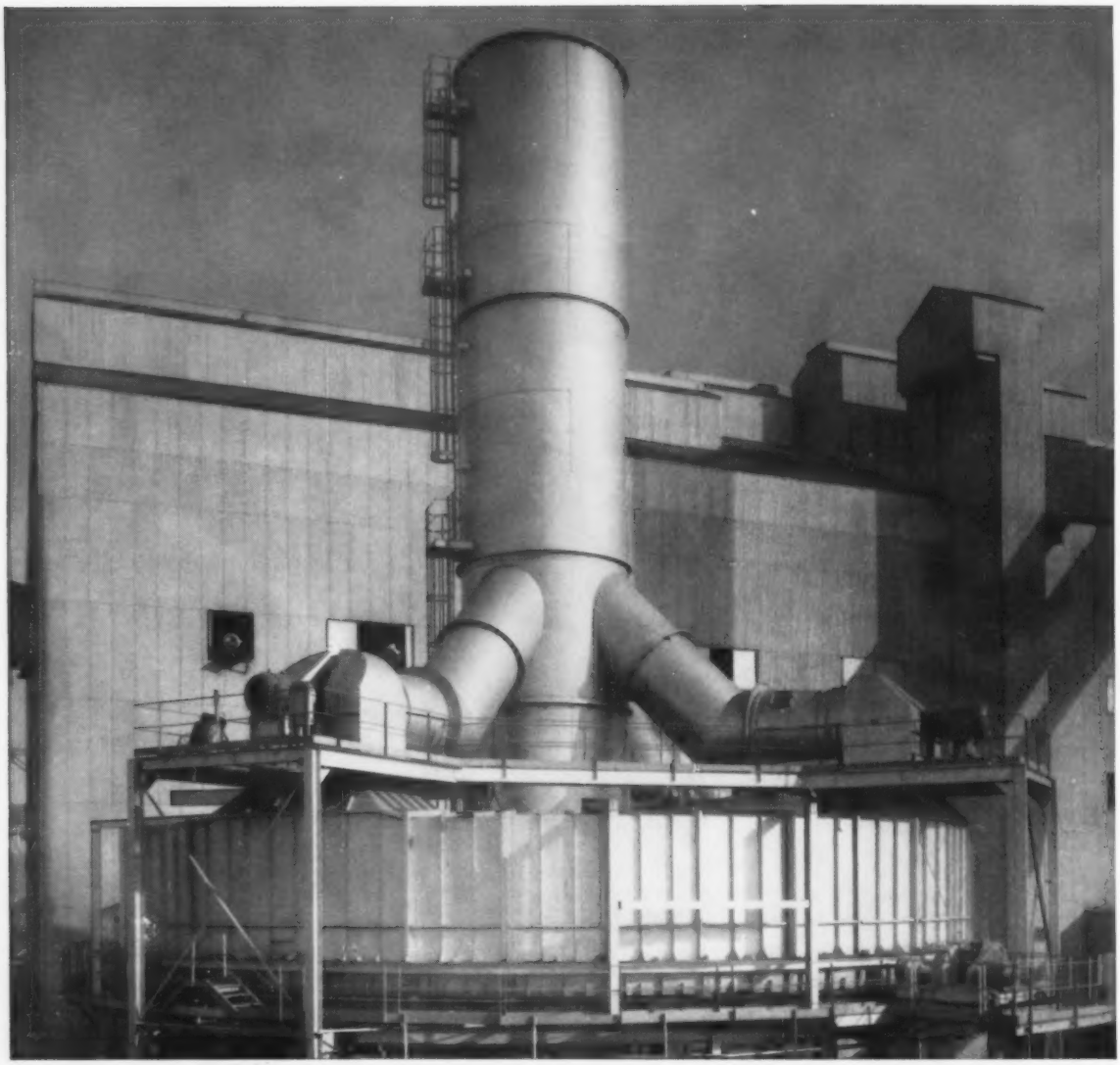

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Admiral Ben Moreell, retiring as chairman of the board, Jones & Laughlin Steel Corp. He will continue as director and a member of the Executive Committee of the Board of Directors.

A. C. Adams, president, elected chairman of the board, Jones & Laughlin Steel Corp.

L. T. Johnston, elected executive vice president, Armco Steel Corp., Middletown, O.

T. P. Wagner, named president, Standard Steel Specialty Co., Beaver Falls, Pa.; **J. B. Jamison,** named chairman of the board.

R. A. Lawson, elected vice president, marketing, Monarch Aluminum Mfg. Co., Cleveland; **W. V. Tracy,** named general sales manager, Commercial Div.

Fayette Brown, Jr., named vice president, mining and lake transportation of iron ore, Shenango Furnace Co., Pittsburgh.

H. T. Thompson, promoted to sales manager, standard fastener products, Chicago Screw Co. Div., Standard Screw Co., Bellwood, Ill.; **E. L. Claussen,** vice president, Stanscrew sales; **R. W. Grady,** standard fasteners sales manager, Hartford Machine Screw Div.

H. T. Hunter, elected vice president, Philadelphia Bronze & Brass Corp., Philadelphia.

Frank Peterson, appointed manager and **F. L. Martin,** as asst. manager, Republic Steel Corp.'s Berger Div., Canton, O.

L. B. Wright, named superintendent, openhearths and electric furnaces, Republic Steel Corp.'s Southern District plant at Gadsden, Ala.

E. H. Thorsteinson, appointed assistant to the president, Armco Steel Corp., Middletown, O.

Dr. J. F. Dunn, appointed asst. director, research, Walworth Co.

Louis Schlossberg, named manager, Strip Mill Sales Div., E. F. Houghton & Co., Philadelphia; **W. C. Johns,** named manager, Bar, Tube & Wire Div., steel mill sales.

H. R. Hoskins, appointed sales manager, S. W. Card Div., Union Twist Drill Co.

Fremont Fisher, named general sales manager, The Electric Auto-Lite Co.'s Electrical Products Group., Toledo, O.

W. V. Warner, appointed general sales manager, Ford Instrument Co., Div. of Sperry Rand Corp.

F. L. Gale, named manager, materials, Gas Turbine Dept., General Electric Co.

R. B. Noren, promoted to sales manager, Special Products Div., The Chicago Screw Co., Div. of Standard Screw Co., Bellwood, Ill.

J. H. Strassburger, appointed director, research and development, National Steel Corp., Pittsburgh.

K. F. Maxcy, Jr., named manager, product development and market research and **D. J. Shaugh-**

J. M. Moon, elected executive vice president, Signode Steel Strapping Co., Chicago.

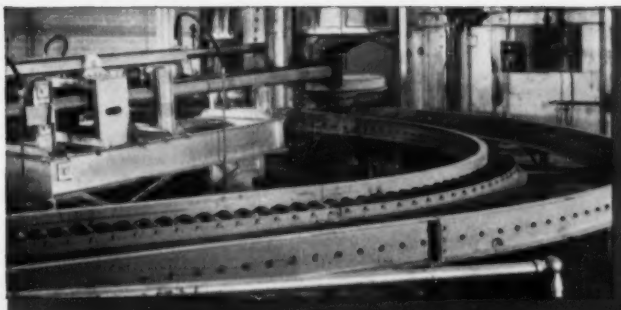
nessy, named manager, production planning, Pittsburgh Steel Co.

G. R. Graham, elected controller, Armco Steel Corp., Middletown, O.

D. R. Branaka, appointed sales manager, Valvair Corp.

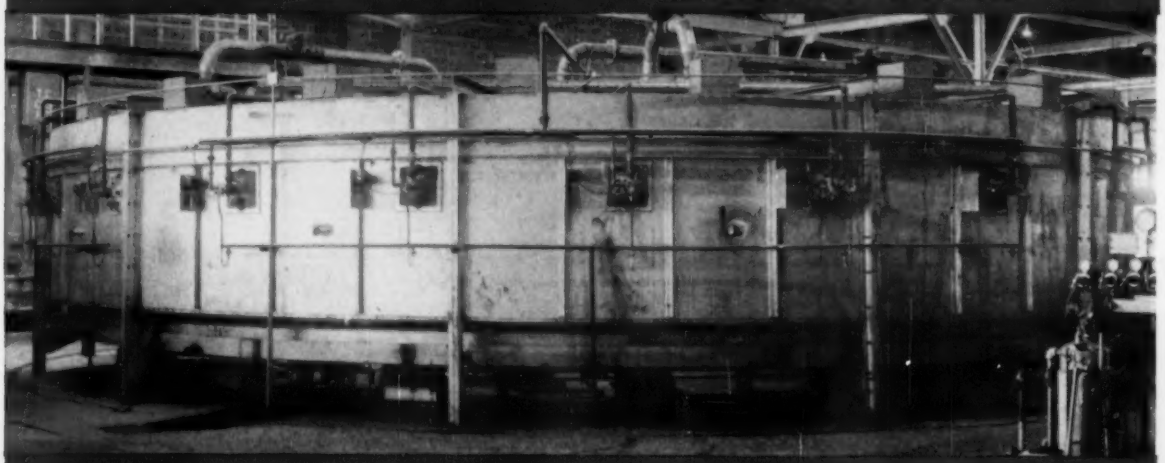
J. T. Miller, Jr., appointed manager, bearing sales, Hoover Ball & Bearing Co., Ann Arbor, Mich.

R. T. Winterringer, named superintendent, Electrical Dept., Republic Steel Corp.'s South Chicago steel



This furnace is set up for automatic loading in regular plant production line.

This field-erected Lindberg rotary hearth furnace is one of several completed, under construction and on order, for plants in U. S. and Canada.



Every so often we want to remind you . . .

LINDBERG Builds Big Ones!

Yes, Lindberg does build big ones! The rotary hearth furnace shown here was field-erected by Lindberg Industrial. It is used for heat treating car wheels and is set up for automatic loading. It's outside diameter is 44 feet and capacity is over 13,000 lbs. per hour.

This is just one of many types of industrial heating equipment, heat treating furnaces, melting furnaces, enameling furnaces, ceramic kilns, that Lindberg is prepared to design, construct and install in your own plant.

Lindberg's years of experience in the broad field of industrial heating equipment, its staff of expert laboratory technicians and seasoned application engineers assure your getting the best suited installation for your process and production requirements.

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heat for industry

At Wayne Pump Co.,
Youngstown Seamless Pipe is being closely inspected in a plunger assembly for use on a modern industrial lift.

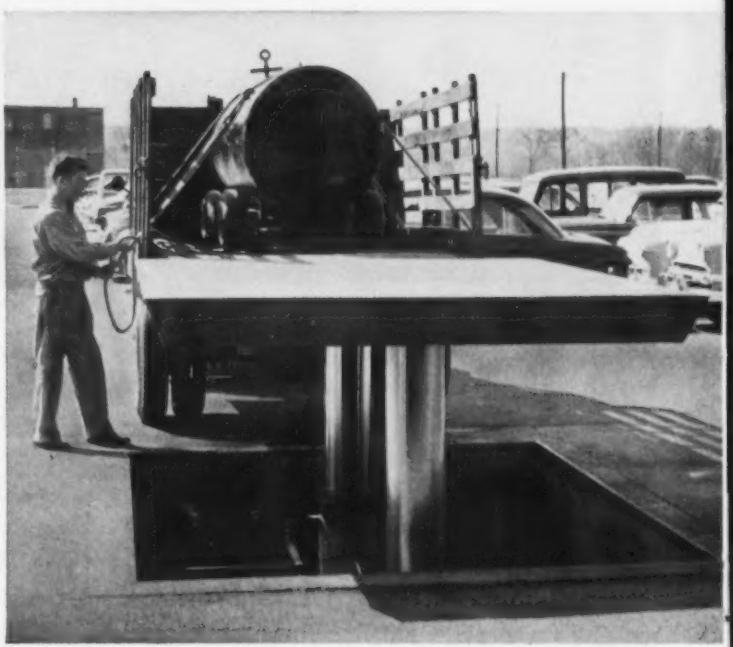
Accent on Excellence

Youngstown seamless pipe

Much of the back-breaking, "man-killing" work of Grandfather's day is a thing of the past—thanks to modern industrial platform lifts such as this installation designed and built by Wayne Pump Company of Fort Wayne, Ind.

Wayne Pump machines and grinds Youngstown Seamless Pipe to finished size for the all-important plungers that support the lift platform. They report this pipe is ideal for the application due to its "uniform quality and freedom from laminations".

Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".



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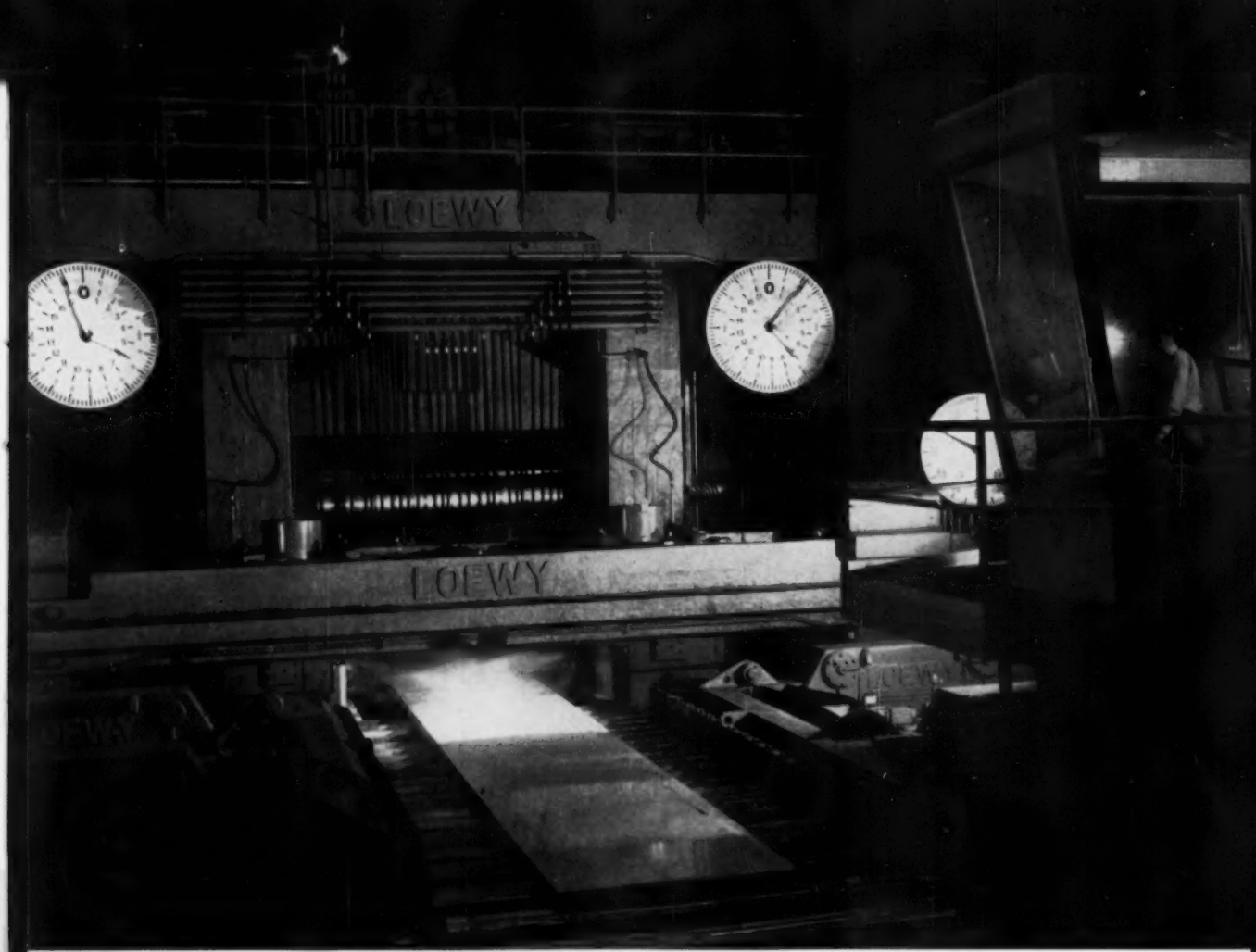

Entry side of 110-in. 4-high reversing hot mill with underdriven edger designed and built by Loewy-Hydropress for Kaiser Aluminum.

New Loewy 4-high slab and plate mill features automatic adjustment of screwdown, edger, sideguards

Designed for high productivity, automated operation, low maintenance cost, and minimum downtime, this new 110-in. 4-high universal slab and plate mill reaffirms Loewy-Hydropress' position of leadership in forming metal. Programmed punch card operation controls the adjustment of screwdown, edger and sideguards in any required preselected sequence, thus relieving the operator of the many split-second decisions usually required. The edger is an underdriven, close-coupled, vertical unit. Rolls are readily removable without disassembly of spindles or any other associated equipment. Horizontal rolls are easily changed by a motor-driven roll changing sled.

Loewy has also built other mills and auxiliary machinery for the same plant.

Loewy designs and builds special machinery to the most exacting demands, modernizes and rebuilds existing installations, supplies completely equipped new plants. And with the vast facilities of the entire Baldwin-Lima-Hamilton organization at our disposal we can complete your job on time . . . very likely even ahead of schedule. For further information, write us at Dept. A-8.

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plant; **F. J. Zupancic,** named asst. superintendent, Electrical Dept.

T. L. Mayes, appointed manager, engineering, General Electric's Industrial Heating Dept., Shelbyville, Ind.

D. R. Spotz, appointed vice president, sales, Pesco Products Div. and Wooster Div., Borg-Warner Corp.

R. L. Pope, appointed district manager, Cleveland, Electro Metallurgical Co.

E. S. Wolslegel, named manager, project engineering, Alloy Mfg. Corp., new subsidiary of Salem-Brosius, Inc.

Sid Mitwol, promoted to general manager, Rectifier Div., Sel-Rex Corp., Nutley, N. J.; **Paul Harper,** appointed West Coast representative.

G. F. Manikas, appointed general manager, Crosby-Laughlin Div., American Hoist & Derrick Co., Fort Wayne, Ind.

W. H. Searles, appointed manager, Market Research Dept., The Bunting Brass & Bronze Co., Toledo, O.

C. J. Snider, appointed manager, marine services, Ford Motor Co., Dearborn, Mich.

G. M. Howser, appointed manager, aluminum sales, Rolled Steel Corp., Skokie, Ill.

R. W. Mullin, promoted to assistant general manager, sales, Pittsburgh Steel Co.

W. E. Geidt, becomes asst. sales manager, Sheet and Strip Div., Inland Steel Co.; **J. B. Judkins,** appointed asst. manager, Tin Plate and Export Sales Div.

K. C. McDonough, promoted assistant to the general manager, sales, Pittsburgh Steel Co.

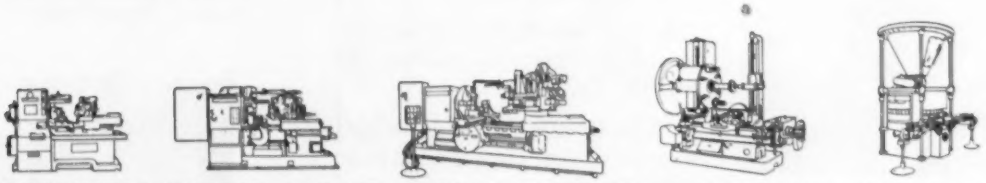
W. E. Porter, will become an asst. district sales manager, New York, Jones & Laughlin Steel

. . . . REDUCE MACHINE-HOURS 71%!

The Rockwell Manufacturing Company of Sulphur Springs, Texas, a leading producer of valves for petroleum and other industries, was using hand-type turret lathes to produce finished valve bodies from rough steel forgings. Looking for a way to reduce costs on this operation, Rockwell purchased two Potter & Johnston 4-U Automatic Turret Lathes. Machine-hours for this operation have been reduced 71% and man-hours have been reduced 86%. In addition, the hand machines and their operators have been released for other work they can handle more profitably, and overall plant production has been increased.

If the parts *you* manufacture require a series of complex cuts, a P&J Automatic can bring you important savings in time and money by producing these parts in a high-speed, fully automatic cycle. And you'll find that P&J Machines are recognized for their ability to take continuous heavy-duty operation in stride.

Act now. Ask the P&J Representative in your area to recommend a production plan for your specific needs. Or, if you prefer, write direct to Potter & Johnston Company, Pawtucket, Rhode Island.



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PRECISION PRODUCTION TOOLING SINCE 1898

Corp.; **Smith Wilson,** becomes asst. district sales manager, Pittsburgh; **W. W. Jones,** becomes asst. to the district sales manager, Cleveland; **E. R. Nelson,** becomes an asst. district sales manager, Detroit; **J. C. Mourkas,** becomes asst. manager, Tin Mill Products Div.

L. B. Keplinger, appointed chairman, Executive Committee, Copperweld Steel Co., Pittsburgh.

G. F. Metcalf, elected regional vice president, Washington Defense Activities, General Electric Co.

P. A. Garrison, appointed sales manager engineering products section, Special Products Div., I-T-E Circuit Breaker Co., Philadelphia.

C. G. Stratton, appointed manager, Dallas plant, Aeroquip Corp., Jackson, Mich.

C. C. Jones, named product sales manager, extruded shapes and tubing, Aluminum Co. of America, Pittsburgh.

E. N. Smith, appointed technical director, Kennametal Inc., Latrobe, Pa.

Following men have been appointed representatives for The American Welding & Mfg. Co., Warren, O. **J. A. Kimpan,** New England district; **D. W. Manning,** Chicago-Wisconsin-Iowa territory, and **W. F. Marks,** Ohio-Indiana area.

H. E. Johnson, elected president, American Iron Ore Assn., Cleveland.

OBITUARIES

K. C. Brownell, 55, chairman of the board, American Smelting & Refining Co.

M. H. Emrick, 47, president and board chairman, Ettco Tool & Machine Co., Inc.

J. E. Bruce, 59, secretary and general counsel, Wheeling Steel Corp.

PRECISION JIG BORING TIME CUT 90% . . .

. . . **WITH P&W NUMERICAL CONTROL!** Precision work put on *predictable* production schedules, completed in as little as 1/10 the time required by previous methods. Costly human errors are eliminated. Positioning accurate to "tenths" absolutely guaranteed. These benefits are reported by Dexter Tool Company of Hazel Park, Michigan, since installing a Pratt & Whitney Numerically Controlled Jig Borer. Dexter produces precision aircraft and automotive components. Work involves 6 to 50 identically machined parts, and it's important to guarantee precision, accurately estimate production time and deliver on schedule. Positioning itself automatically by punched tape, the Numerically Controlled Jig Borer handles "tenths" limits as fast and surely as ordinary work. A Dexter spokesman states, "We think the P&W 2E Numerical is the greatest single improvement in machine tooling. It's the ultimate."

Today, "tenths" limits are common, yet profitable operation demands that you produce faster than ever before. Pratt & Whitney Machine Tools with Numerical Control can provide the right answer for you!

Write now for complete information.
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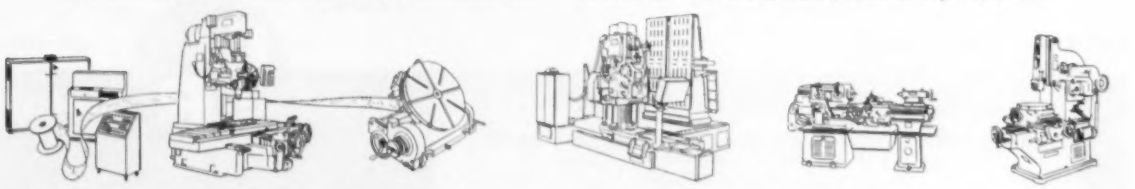

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If your work involves sealing applications, you are probably familiar with "Teflon", Tetrafluoroethylene Resin. The extreme versatility of its chemical, thermal and mechanical properties are unmatched by any other material on the market.

You may not be, however, fully aware of the degree to which these properties can be distinctly improved by the use of reinforcing inorganic additives. For example, "Teflon" can be blended with inorganics to increase:

- **Resistance to deformation under load — by a factor of 10**
- **Resistance to wear by rotating shafts — by as much as 500 times**
- **Stiffness — by a factor of 4-5**
- **Thermal conductivity — by a factor of 5-10**
- **Compressive strength — by a factor of 3-4**
- **Hardness — by 10%**

It is also useful to know that Chicago Rawhide is one of the few fabricators which blends its own "Teflon" compounds, assuring constant quality in batch after batch and permitting compound formulations to be developed rapidly and accurately. Our new laboratory and production facilities are unexcelled – and these facilities are matched by our experience in molding synthetic parts to meet the most critical specifications.

C/R Sirvene welcomes the opportunity to cooperate with you in the design and production of "Teflon" and reinforced "Teflon" packings, bearings, gaskets, rings, or other parts.

If you are interested in "Teflon" write for your free copy of Sirvene Materials Bulletin CT-1.

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CONTROVERSIAL CONCEPT: Buhr Machine Tool Co. vice presidents W. R. Gerchow (left) and A. A. Vetter (right) study ways to switch building blocks on one of Chrysler Corp.'s transfer machining lines.

Are Building Blocks Practical?

Machine Tool Users and Builders Air Their Views

Can machining units and other parts of automated lines be standardized so they're freely interchangeable?

If so, what will it mean to metalworking plants? To machine tool builders? Here's a summary of current views.

By R. H. Eshelman—
Engineering Editor

■ Metalworking executives and engineers generally approve of standardization. It is a sound engineering principle—the basis of our mass production economy. Nearly everyone can agree on this.

But when you try to get down to cases disagreement breaks out. Take automated machining lines. For some time now, production engineers have said they need standardized machine units, components and accessories. And the need isn't confined to the automotive field.

For instance, in Feb., 1955, A. E. Wiles, General Electric Co.'s manager of equipment development, told a machine design conference, "our equipment must be flexible, so that we do not suffer great financial losses from obsolescence, and/or a change in product design.

"Standards could be established . . . so that boring heads manufactured by one company would be interchangeable with drill heads

GENERAL MOTORS' JOHN HOLMES: "It isn't new . . . the only trouble is that among the machine tool builders, everyone has a different standard."

manufactured by another . . . Standard mountings, like pieces of an Erector set, . . . could be used and reused."

Detroit's View — As the largest users of transfer-type equipment, automobile makers are particularly vocal on this subject. A trial balloon, lofted by Chrysler Corp.'s B. J. Drummond at a recent plant maintenance meeting, sums up their views about a common problem:

"Rapid improvements in design and performance of a number of major automotive components, notably engines, transmissions, and power steering, has rendered obsolete large numbers of machines which had been used only a few years and in some cases only one year," Drummond said. "The answer . . . may well be the development of the concept of 'building block' machine tool construction."

John Holmes, General Motors' authority on standardization, confirms how a radical model change caused one plant to lose 80 pct of its investment in a new transfer line. Specifically, the plant salvaged only $200,000 from a $1 million capital expenditure. Indications are that this is fairly typical. Automotive people agree that no one can afford that kind of write-off.

The first big effort to do something about building block machine tools came from Ford Motor Co. Manufacturing vice president D. J. Davis, sure that the concept would work in his own engine plants, suggested it to the Defense Dept., also. He thought it might solve some of the nation's preparedness problems, such as obsolescence of stored machine tools.

Machine Builders Dissent—Ford manufacturing engineers presented their program to the Defense Dept. last September, outlining their concept of fully interchangeable machine units. Central features are standard mounting patterns and uniform spindle heights.

This may have been an untimely introduction, Washington sources hint. Most old-line machine tool builders, while refusing public com-

DEFENSE DEPT.'S JOHN WILLIAMS: "Many questions to be answered on costs, effect on technological improvement, production benefits."

Survey Builders for Their Comments

▪ U. S. machine tool builders seem in no hurry to embrace the building block idea. Fifty-one builders out of 171 quizzed by The IRON AGE promptly replied to our mail survey. Only six of these company presidents (12 pct of the total) gave their unreserved support to the concept.

Ten of the builders (20 pct of those replying) expressed strong views against the idea. The most common complaint was summed up by one top executive who said: "We feel that flexibility of design is most important. If rigid specifications are put forth [for tool components] we believe that flexibility will be lost."

Eleven builders managed to see a limited future for building block machining lines. The general view in this area was expressed by George Gorton III, president of the George Gorton Machine Co., Racine, Wis. His firm builds standard types of milling machines, cutter grinders and Swiss-type automatic screw machines, among others. But about 20 pct of the firm's output is in so-called special machine tools.

Mr. Gorton says: "We don't believe this concept will revolutionize the industry, but we are convinced it offers definite advantages to the customer for certain applications. We are now designing special purpose machines around the building block concept and have had individual units for such machines operating successfully in customer plants for more than a year."

Five builders who make such diverse equipment as hydraulic presses and abrasive-belt grinding machines say the building block theory doesn't apply to them.

Significantly, the largest group of respondents, 19 in all, thought it best to check the "No Comment" column when asked for their views. This group could well decide the success or failure of the idea.

SNYDER TOOL'S HOWARD MAYNARD: "Warrants serious consideration, but . . . could defeat the basic reasons for designing and installing such types of equipment."

ment, privately view the plan with a jaundiced eye. Possibly the threat of government intervention bothers them, as well as cost factors and their distaste for restrictions.

There's a wide range of opinion, however. The National Machine Tool Builders' Assn. issued a statement that, "this is not a matter for the association, but . . . for each machine tool builder to decide . . ."

Government Uncertain — John Williams, chief of the Defense Dept.'s Production Equipment Branch, says if the idea is adopted, "Possible improvements are limited; or if the increase in flexibility is not worth a loss in production, then we wouldn't want to be caught dead with it."

The Commerce Dept.'s Business and Defense Services Administration is studying the idea. Neils A. Olsen, director of BDSA's Metalworking Equipment Div., is making a government survey on it. Olsen indicates he's not sold on the plan. He fears that a complete change to building blocks might make general-purpose tools obsolete. This could be dangerous in a national emergency, he feels.

More Interest — Prospects for some building block-type of standardization in the automotive industry appear much brighter, however. A Big Three engineering committee, formed to sound out the chances for some type of Joint Industry Conference on the subject, is getting a respectful hearing. Transfer machine builders support the idea to varying degrees. For instance, Ralph Cross, of Detroit's Cross Co., says, "we're 100 pct behind the idea."

NMTBA'S A. V. BODINE: "Up to each builder to decide for himself."

But he notes some practical limitations.

Many builders of special and automated machines point out that they've used building block principles in their own standardization programs for some time. These firms include Buhr, Cross, Snyder, W. F. & John Barnes, and Natco, as well as others.

Reactions Vary—The automotive industry's building block standardization committee is busy collecting data on machine mounting patterns,

Tally of Equipment Makers' Views

Builder Makes	Pct Who Approve	Pct Who Disapprove	Pct Who See Limited Use	Pct Who Can't Apply It	Pct Making No Comment
Standard Machines	11	14	21	11	43
Special Machines	18	29	18	12	23
50/50 Std and Special Machines	—	17	33	—	50
Analysis of all Replies	12	20	21	10	37

FORD'S HENRY DAUM: "Building block tools are a necessity . . . to reduce obsolescence due to more frequent product design changes."

GENERAL ELECTRIC'S A. E. WILES: "Our equipment must be flexible . . . to avoid losses from obsolescence . . . or design changes.

ALLIS CHALMERS' HENRY LARSEN: Maybe we would consider automation more . . . if these changes were adopted."

spindle heights, and the like. This will take some time. Sorting and setting up proposed standards will take even longer.

Some builders who are going along with the program say they aren't too happy with certain aspects. "Why expect us to disclose our trade secrets," they grumble. "After all, they (the automotive firms) aren't willing to open their books to Mr. Reuther." And, "We can standardize when all auto firms are willing to settle on the same engine block," others declare.

A discussion of details brings out further comments. Howard N. Maynard, president of Snyder Tool and Engineering, Detroit, points out that the "building block method may dictate a construction not conducive to maximum accuracy . . . Where a head must machine a part at an angle to a transfer line, the building block method says use a wing section and a pie-shaped section . . . bolted to the center section, giving a less accurate, two-plane, four-surface machining operation."

The feeling is that too wide an application of building block principles could compromise machine design, with a loss in the cost savings commonly associated with special machines.

Other Questions — There are other questions to be answered, too. Some manufacturing managers with long experience pose some real puzzlers. For instance, they ask, "Where would we store unused machine units? Our yards are full of tools and dies now. Besides, machine tools would deteriorate rapidly."

Also, "Where would the changes in automated lines be made? There's little space—or time—to do the job in the manufacturing plant. And most of the advantages of the program are lost if equipment has to go back to the builder's plant for rework."

Again, "How flexible will building block automation actually be? Can you convert an engine block transfer line to make transmission parts? If not, can you convert a transmission-part line to do the job when you must split the part into two pieces to accommodate a design change?"

Also, "Who will do the reconversion? Would a machine builder be willing to set up a line and guarantee it, combining a variety of used machine heads of other makes? Or would he want to tear them down and rebuild them, thereby nullifying most of the advantage of the principle?"

What Savings?—These questions all focus on one point: what would be the actual savings over present methods? How much of the original investment could be salvaged? Estimates range from as high as 95 pct to as low as 10 pct. Probably no one really knows at this point. One automation builder says, however, that as much as 90 pct of the cost of revamping a machine line goes for labor costs, if you include engineering.

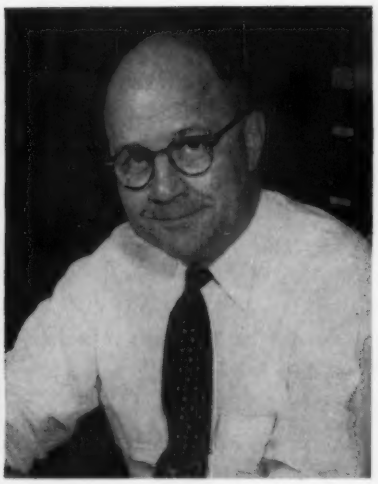
On the other hand, automotive people point out that standardized units should simplify the job greatly. They feel it should be possible to modify a transfer line much faster, with less new engineering and only minimum changes.

Objections May Fade—You always have objections when you first propose standardization, building block proponents argue. The fact that many automation suppliers already have their own standards shows it can be done, they say.

Ford tabulations of power units, drilling and milling units show that considerable standardization may be feasible. Some of these dimen-

INTERNATIONAL HARVESTER'S C. D. EVANS: "If we can avoid premature obsolescence we are certainly interested.

CROSS CO.'S RALPH CROSS: "This will extend payoff times and help the machine tool business, but there are limits to its scope."



EVINRUDE'S W. J. WEBB: "Anytime we can get standard machines, we're for it . . ."

sions are amazingly close—but just enough different that units are not interchangeable.

NEMA standardization hasn't limited electric motor makers, nor restricted competition, it's pointed out. In the same way, JIC standards for presses have helped industry, making it possible to shift jobs around the shop for greater flexibility.

Likewise, standard outside dimensions and mounting arrangements would give automated machining lines the flexibility they need, so the argument runs. Each machine builder would still be free to concentrate on specific features and advantages of his equipment within that framework. After all, it's functions—pieces-per-hour production—that the manufacturer is interested in, engineers say, rather than equipment details.

They feel that many of the builders' objections about added costs of new patterns, jigs, and tools, and limitation of ingenuity may fade after some real progress is made toward standardization.

Small Plants Affected — Both sides agree that smaller plants in non-automotive production will be affected by a swing to building block construction. Some machine builders claim small manufacturers will have to pay for something they don't want and can't use. Further, they may suffer from stifling of technological improvements. And many small makers of special machinery may be forced to the wall. Perhaps even some makers of standard machine tools may suffer.

Not so, counter proponents of the concept. They argue that automation standards will enable many smaller plants to buy used units and convert them to their own needs. This will bring greater productivity, which is badly needed, and give the American economy more flexibility to meet rapid shifts in markets. They also think the machine tool industry as a whole will gain from more dynamic business conditions.

Opinion in typical small manufacturing areas seems about as divergent. Comments range from: "Can't see how it'll help us," to, "It certainly would be advantageous to industry in general." A smaller motor manufacturer says, "A lot of people who can't buy big equipment lines could buy smaller automation units."

Lease and Change? — Will increasingly rapid changes in automotive and other product designs force a radical revision of tooling concepts? That's still the basic question. Instead of a three-year redesign cycle, with facelifts in between, automotive engineers are now virtually in an annual model-change pattern. If some degree of building block standardization comes, will that alter machine tool procurement methods? Could it result in leasing of such lines to the auto firms with provision for annual changes?

In any event it's apparent that metalworking industries need more flexibility and versatility than automatic transfer lines now afford. This is the challenge to machine tool makers.

In all the fuss about building blocks there's one central unanswered question: Can the influential automotive industry get highly individualistic machine tool builders to sit down for a discussion? If so, will they be able to come up with any substantial agreement? At this stage it's still uncertain whether special machines can be standardized.

Production Furnace Turns Out Scale-Free Billets

By H. C. Bostwick—Asst. to the President, Drever Co., Bethayres, Pa.

There's no room for scale, when hot forging calls for tolerances of 0.012 in.

While scale-free furnace heating is well established in theory, it's the practice that counts. Here's a burning system that adapts to production rates.

▪ A new system of combustion permits scale-free heating of billets for forging or extrusion. It's a method of preheating combustion air to a very high temperature, 1900° to 2000°F, in order to operate the burners at 50-pct combustion and obtain furnace temperatures of 2000° to 2400°F.

The resulting products of combustion which form the furnace atmosphere are strongly reducing, containing about 20-pct H_2, 13-pct CO and 3.5-pct CO_2. In this atmosphere steel can be heated without scale to temperatures in the forging and extrusion range.

Known as the "Equiverse" system of combustion, it was developed and patented by The Incandescent Heat Co., Birmingham, England. Drever Co. is the licensee to build the units in this country.

Solves Difficulty—The new setup solves the difficulty of achieving a sufficiently high preheat temperature of combustion air to obtain the high temperatures when operating the burners with only 50-pct primary air for complete combustion. This is done by combining secondary combustion and regeneration with alternate firing of burners, first from one side of the heating chamber and then from the opposite side.

Secondary combustion of the furnace atmosphere occurs in front of a metallic lined regenerator mounted on top of the furnace. The heat thus developed is stored in the regenerator and is used to preheat the primary air on reversal of the cycle.

There is no leakage problem, as in a recuperator, since the air travels in one direction and the hot gases in the opposite direction through the same path. The regenerators operate in pairs separated by a reversing valve.

Alternate Heating—One regenerator functions to preheat the air to the burners from one side of the furnace while the other is being heated by secondary combustion of the furnace atmosphere being exhausted from the opposite side of the furnace. It's made possible by the design of the burner blocks which function alternately as burners and exhaust ports.

In the furnace wall the same ports which direct the preheated air to the burners act as exhaust ports when the cycle is reversed. Rapid reversal, once every minute, maintains uniform preheating temperatures.

The regenerator produces a large drop in temperature from the secondary combustion chamber to the reversing valve. Products of combustion exhaust at 400° to 500°F when the furnace is operating at 2400°F.

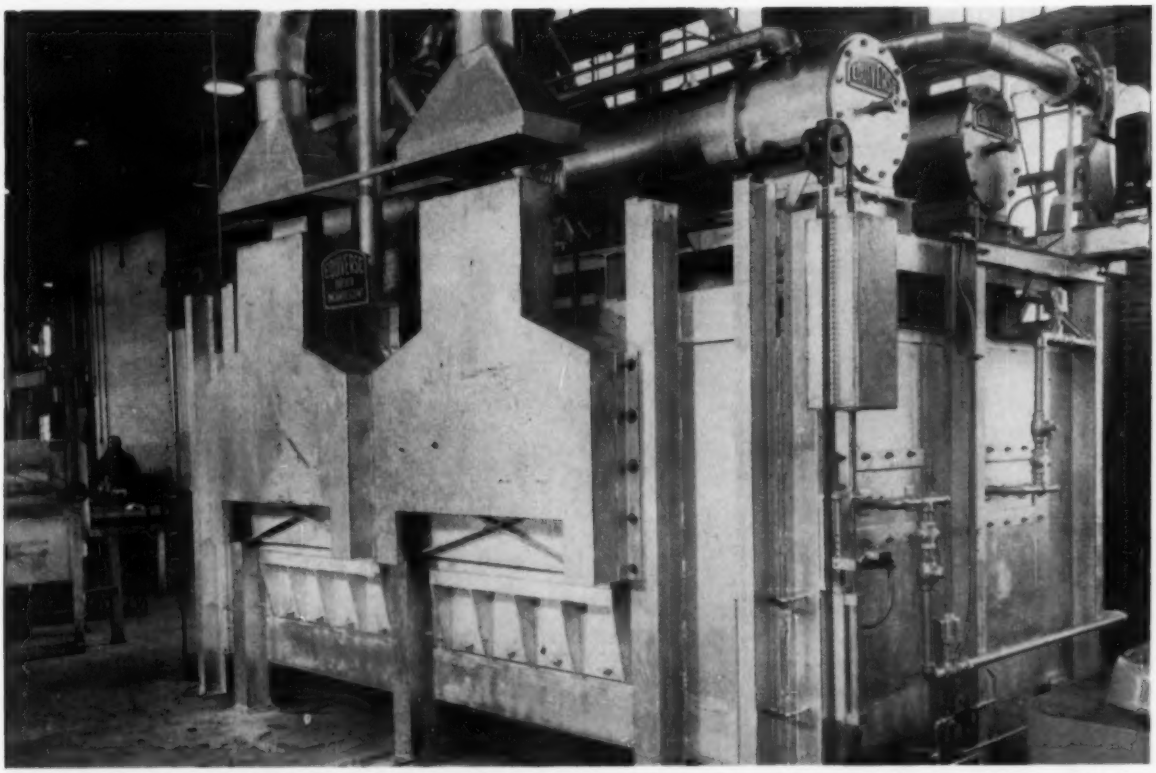
There are no radiant tubes or silicon carbide arches inside the furnace which would be a potential source of maintenance. All working parts, including reversing valves and butterfly valves are mounted above the furnace where they are readily accessible. The metallic lining of the regenerator consists of several rows of cast alloy tubes stacked horizontally inside the regenerator casing.

Choice for Forging Unit—The new rotary forging machine at Curtiss-Wright Corp., Metals Processing Div., Buffalo, requires a uniformly heated, scale-free billet. In the firm's new setup, the "Equiverse" system is applied to a standard box or slot-type furnace. Both solid billets from 2½ to 4½ in. diam and tubing with the same outside diameter and ½ to ⅝ in. wall thickness will be heated to forging temperature at rates as fast as 60 pieces per hour.

The hearth dimensions of the furnace are 10 ft 10¾ in. wide, 6 ft 1 in. deep and 2 ft 1 in. high from hearth to arch. The two openings are 3 ft 9 in. wide and 10 in. high, separated by a 13½-in. wall. The furnace chamber is lined with an average of 9 in. of fire brick backed by 7 in. of insulating brick and block.

The arch is a Detrick 10-in. suspended fire tile covered with 5 in. of insulating brick and block. A suspended wall of the same material is used on the front of the furnace above the slot openings. Pre-molded hollow-tile blocks in the side walls provide a uniform path for the preheated combustion air and on reversing the cycle provide the flues to the secondary combustion chamber.

Suction Exhaust—A suction-type exhaust fan for each set of regenerators draws the products of combustion from the furnace chamber up to the secondary combustion



ALTERNATING CYCLE: Regenerator cylinders, mounted on top of slot-type furnace at Curtiss-Wright, operate in pairs. As one preheats combustion air, the other is taking on heat from secondary combustion.

chamber and through the regenerator to the exhaust stack. The same suction or negative pressure at the secondary combustion chamber is used to draw in secondary air to complete secondary combustion.

A butterfly valve insures just enough air to complete secondary combustion. Another butterfly valve in the exhaust stack on the down stream side of the exhaust blower regulates the amount of atmosphere and secondary air being drawn into the system and is set to maintain a positive pressure of from 0.1-0.2 in. water column.

What makes this possible is that only about ⅔ of the furnace atmosphere is required for secondary combustion to preheat the primary air. The other ⅓ of the atmosphere is exhausted direct to the stack through adjustable exhaust ports when the doors are closed or directly through the slot opening when the doors are open. It provides purging through the open door to prevent influx of air and contamination of the reducing atmosphere inside the furnace chamber.

Two Sets of Regenerators—The furnace has two sets of regenerators and four burners on each side of the furnace firing alternately. The burner capacity is 4 million Btu, equivalent to 4000 cfh of natural gas.

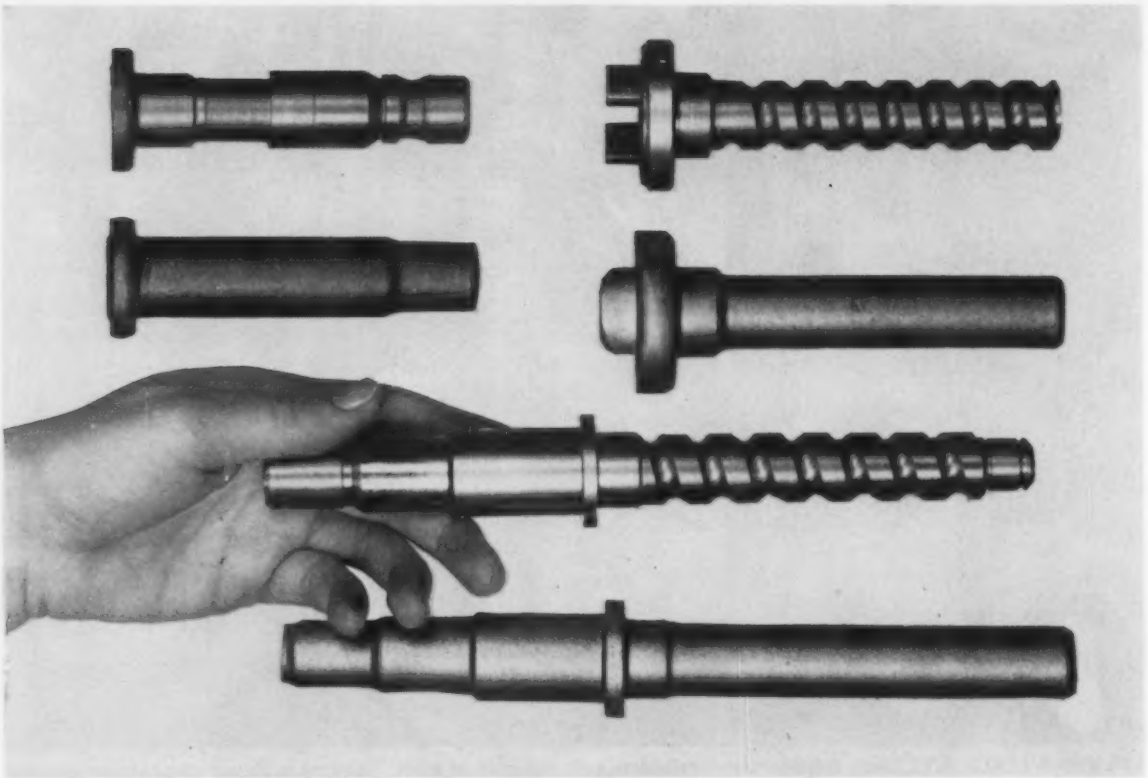
Production capacity of the furnace depends upon the size and shape of the billets to be heated and the method of operation. Normally when charging a cold billet after a hot billet is withdrawn, a production rate of 3000 lb per hour is anticipated with an economy of 1.8-2.0 million Btu per ton.

Fuel consumption of a continuous-type "Equiverse" furnace in England over a period of eight weeks, operating two shifts per day, 80 hours per week, is 1.9 million Btu per ton. This includes standby losses for the remaining 68 hours per week. The furnace is heating billets for extrusion by the Sejournet process.

Close Control—A feature of the Curtiss-Wright furnace is the automatic temperature and combustible control, based on a sensing unit in the main gas line. A pressure drop across the orifice of the unit picks up the total gas flow. The temperature recorder and controller acts as in a conventional system of proportional control to operate the valve in the main gas line.

The air-to-gas ratio must be maintained to give the required per cent combustibles in the atmosphere. To compensate for any small variations, a combustible analyzer continuously samples atmosphere from the furnace and automatically makes any readjustment of the air-to-gas ratio to hold exact per cent.

Just as the amount of primary air required is a function of the total gas, the amount of atmosphere drawn up into the secondary combustion chamber and through the regenerators is also a function of the total gas being used.



SAVES METAL: Steering gear parts are made more quickly and at lower cost with cold extruded blanks.

Preform Blanks From Bar Stock To Cut Machining Costs

Do you machine any kind of multi-diameter part from steel bar stock?

Maybe you can save on metal and time with a cold extruded blank, preformed close to the final size you need.

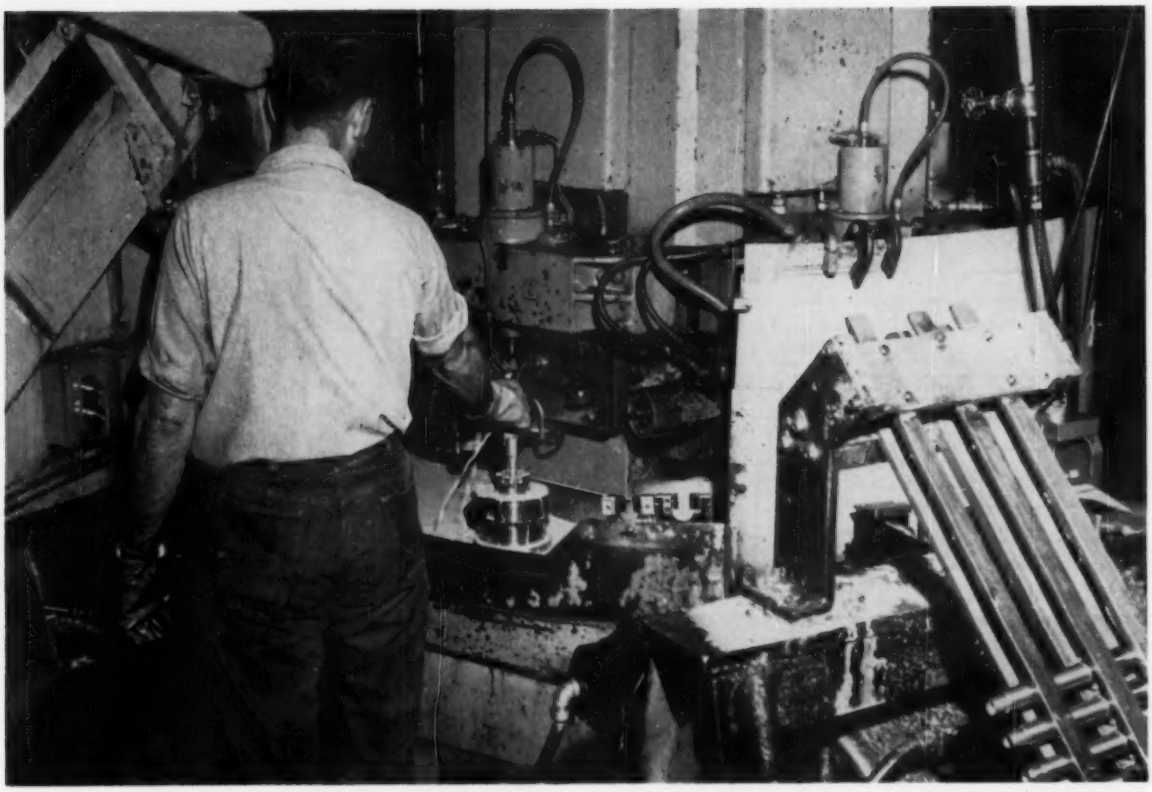
▪ A growing number of plants are finding a new way to cut the cost of making stepped shafts and other symmetrical designs. They're using close-tolerance "die-form" blanks supplied by such sources as Republic Steel's Bolt and Nut Div. and Molloy Mfg. Co., Detroit.

Republic's engineers say that typical materials savings with these blanks runs about a third. In some cases, savings may be as high as 40 to 50 pct. And there are other advantages, too, on appropriate parts.

What Parts?—Republic says it can make blanks up to two inches in diameter. For top savings on material, parts should have two or more diameters, but hourglass or reverse cross-sections can't be cold formed this way. Because of engineering and die costs, production volume must be fairly high.

It's desirable that parts made from die-formed blanks should have symmetrical cross-sections. Yet there are exceptions. For instance, Molloy makes an eared blank for General Motors' Saginaw Steering Gear Div. Saginaw's engineers say it's the most practical, low-cost way they have found to turn out this part. The steel used is SAE 5120.

Materials Vary—As a rule you don't have to go to such high strength steels; generally, by cold extrusion or forging you can get tensiles above 100,000 psi from hot rolled carbon steels without heat treating. Use of less expensive steels adds a bonus saving in material costs, always a major factor.



FINISH MACHINING: Extruded blanks for steering gear worms need only a light finishing cut in this lathe.

B. J. Molloy, president of Molloy Mfg., says, "Cold forged parts have higher strength and fatigue properties than similar parts made of the same material and heat treated in the conventional way." His firm turns out large numbers of alloy steel blanks with carbon content ranging up to 0.60 pct. However, it also makes many blanks from SAE 1010 or similar steels.

More Advantages — The payoff with extruded blanks shows up when you compare the cost of machining the same parts from bar stock. Because cold formed blanks are nearer to finished-part size, machining time is much less. Moreover, because blanks have a good commercial finish, some surfaces might not need any machining.

Cold working generally improves machinability, too. W. E. Haremski, chief tool engineer of Saginaw Steering's Plant 2, explains that blanks have a skin or outer case which carbide tools peel off readily at high speeds. To machine similar parts from bar stock at high speed, the plant has to use leaded steels to overcome a gummy condition.

But the savings on raw material are still the most obvious ones. For example, one typical piece that formerly needed 11¾ lb of steel bar stock is now made from a cold formed blank weighing only 7½ lb —a saving of 4 lb per piece. And an automotive transmission shaft, that originally took 12½ lb of bar stock, was converted to a 7½ lb cold-formed blank, saving 5 lb. Over two million of these pieces have been made for Chrysler Corp.

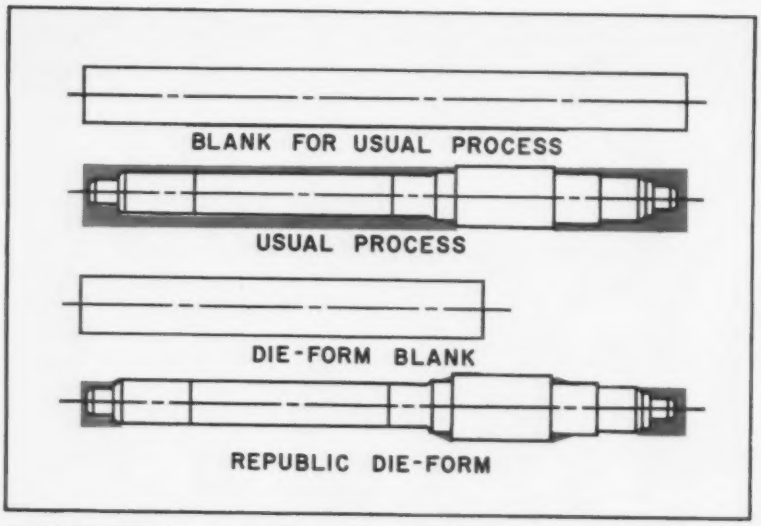
Other Savings—For high volume parts, these material savings also mean lower shipping, stock-storage, materials- handling, and scrap costs. And because the cold worked blanks are stronger, it's often possible to eliminate heat treatments or other costly processes.

On the other hand, die-formed blanks don't always bring big savings. Examples are screw machine parts where little metal is removed. On such pieces the screw machine process may be cheaper, since the cold-formed workpieces must be chucked for machining, perhaps several different times.

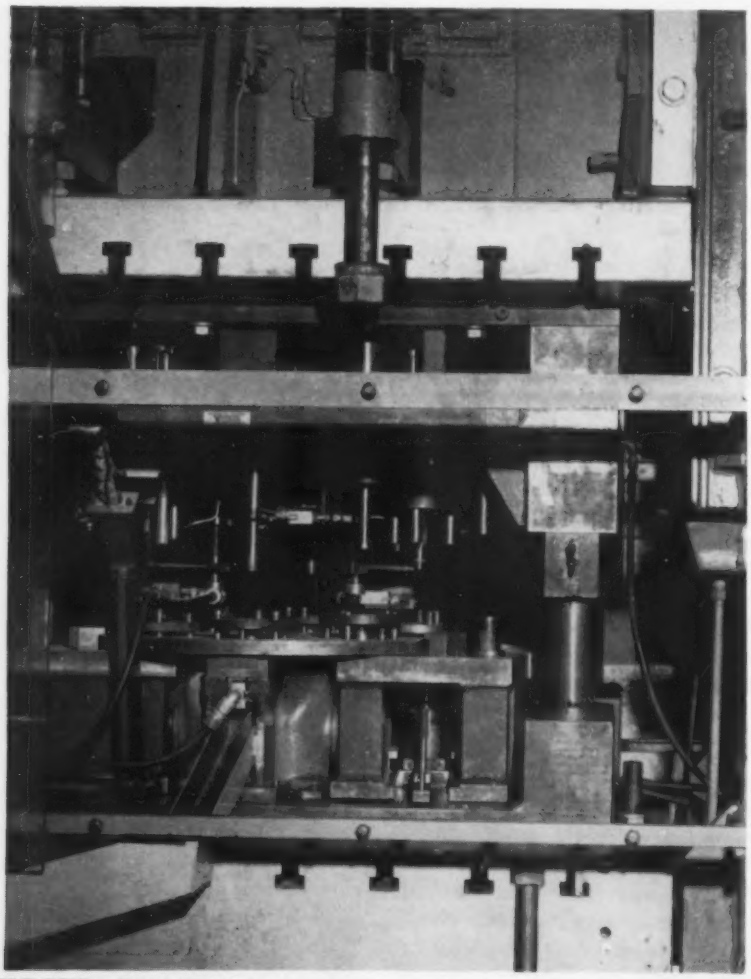
Where It Pays—For the best savings it's important to choose proper applications, the experts warn. Often there's no way to tell, except by past experience, whether a part design is appropriate.

Still, the item doesn't always have to be a long, thin spindle; Saginaw Steering picks up some neat savings on a cup blank for a universal joint bearing. It's backward extruded on a circular index die. One of the payoffs here comes from lower capital investment; some 14 screw machines would have been needed to make the part conventionally.

On the other hand, Cadillac uses cold formed blanks instead of hot forgings for front wheel spindles. It finds the new blank is easier to



FEWER CHIPS: Bar stock blank (top) weighs much more than die-form blank (bottom) used to machine identical production parts.



INDEXED FOR SPEED: Press knocks out backward-extruded blanks for universal joint bearings from cold headed slugs of SAE 1012 steel.

process and tool life is longer, although the difference in weight is small. The hot forging is 3 lb 1⅛ oz, the cold formed blank 2 lb 14½ oz. The extruded part is more uniform and has better fatigue strength, Cadillac metallurgist Arthur Smith points out.

Some Questions—When considering parts that might be made from cold formed blanks, here are some questions you'll want to ask: Are worthwhile materials savings possible? How many secondary operations will be needed? Would better machining qualities yield savings? Can some present process steps be eliminated if you go to this type of blank?

Also: How will labor costs stack up? Can you save on capital equipment? Are production runs high enough or part life long enough to warrant die and development costs? Can you improve the end product, take advantage of higher strengths that come from cold working? Would closer blank dimensions or better surface finish pay off?

In studying new applications, bear in mind that metal flow in extrusion and cold forging is often unpredictable. When blanks are being developed, check them for internal ruptures. Experienced die formers are not always sure the process will work for unusual parts. Sometimes you have to build the tooling to find out.

Engineering and development costs may vary widely. Your best bet is to seek experienced counsel about your potential payoff. But it's also well to remember this: if someone hadn't been willing to gamble, these processes would never have advanced to the production stage. They're no longer experimental. Saginaw Steering Gear alone has used some 2½ million cold formed blanks.

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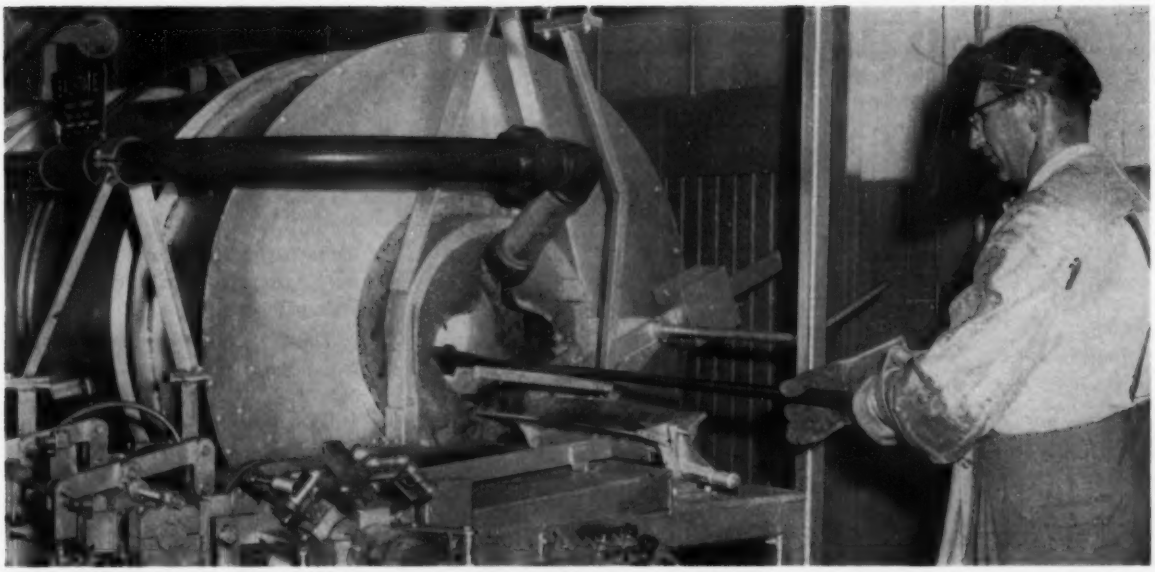


RETRIEVES BILLET: Operator reaches into the furnace for a finished billet. It then goes to an extrusion press.

Heat Billets With Molten Glass

When extrusion presses outpace heating furnace output, they must wait for the supply to catch up.

More furnace capacity would help. But a better solution may be found in using a new furnace which heats billets rapidly with molten glass.

▪ Ordinary broken glass helps a new furnace to speed heating of steel extrusion billets. Gas fired, the furnace reduces the glass to a molten pool. Billets immersed in this molten pool are heated uniformly in minutes rather than hours.

Such rapid heating forecasts fuel cost savings. It also means increased output of billets for extrusion.

Bal-Tate Furnace Co., Royal Oak, Mich., has built one such unit which is undergoing further development. It heats four diameter inches in 12 to 15 minutes.

Bigger Ones Coming—The present furnace has a 1000 lb per hour output. However, the firm states that 10,000-lb per hour capacity units are forthcoming.

Made of sheet steel and lined with refractory brick, the furnace has a charging hole at one end; a discharge hole at the other. A burner for natural gas is at the discharge end.

The charging end is also the exhaust. Here, gases which pass through a recouperator preheat the billets to 1500° to 1600°F. Operators then charge billets into the furnace. Their axes are kept parallel to the unit's axis.

Add Broken Bottles—Each batch of steel billets requires about 100 lb of scrap glass. This includes milk bottles, broken window panes, etc. It takes about 10 to 20 lb of glass per ton of billets. The molten glass forms a pool about 4 in. deep.

As the furnace rotates, the billets roll through the molten glass. This descales them and coats them with a layer of molten glass. Which prevents further oxidation of the steel.

Coats Furnace—Sides of the rotating furnace also become coated with glass. It protects the furnace lining from abrasion by the billets as they roll. Estimated lining life is 2 to 3 years.

Removal of the glass layer from the billets after heating is a simple matter. Scraping knives quickly remove it just before the billets are delivered to the extrusion press.

The maker thinks furnace operations can be automated 90 pct. Automatic feeding and discharging equipment now being designed would make this possible.

Protects Metals—Low operating and maintenance costs aren't the furnace's only assets. Tests show it has advantages in the heating of high-temperature alloys. Molybdenum, for example, has been heated to 2400°F without reducing the material or producing smoke.

Steel and other materials have been heated to similar or higher heats. It also allows the use of extrusion equipment of lower rating.

Sealed Units Aid Processing Of Powdered Products

Disposable containers can be costly for bulk materials used in quantity.

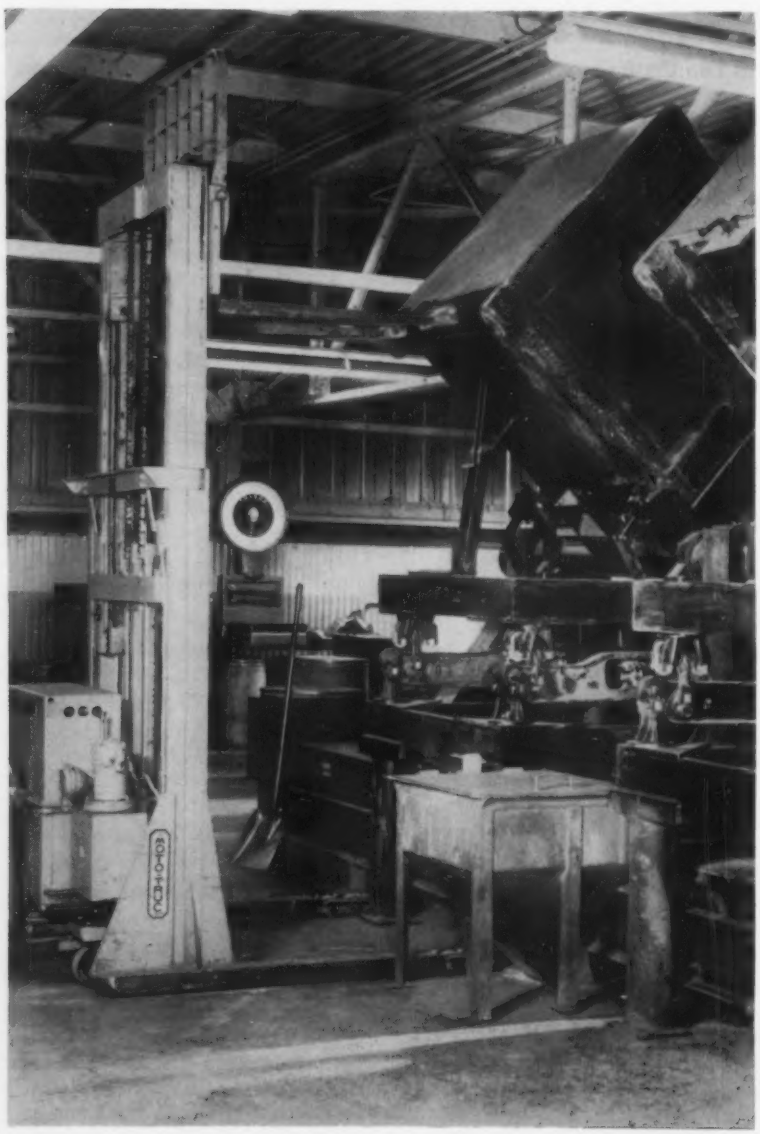
One company finds that reusable sealed containers save time, labor and space in handling its raw material.

▪ Handle a powdered material under pneumatic seal and you get two advantages: There's no contamination of product and the plant's easier to keep clean without spillage or dust in the air.

These are just two of many benefits for one producer of powdered metal parts. Bulk handling of powdered iron is done with a closed system throughout.

The system is built around steel bins holding 6000 lb each and hoppers 3500 lb each. In conjunction are discharge mechanisms, conveyors, chutes, and automatic scales.

This method of materials handling, set up at Ford Motor Co.'s Rawsonville, Mich. plant, was engineered by Tote System, Inc., Beatrice, Neb. The bins and hoppers are hermetically sealed from time of filling until discharge into process.



◀ **TILT FOR DISCHARGE:** Forklift unit places bin on discharge mechanism and tilts it to 45° to empty contents.

Units Save Space—Ford uses 123 of the 6000-lb capacity bins, which serve as shipping, storage and discharge containers. The units, received at the freight siding, are double-tiered to save space. Should conditions warrant, they can be triple-tiered to save still another one-third of warehouse space.

From the siding area, the bins are conveyed to the discharge balcony a floor above by fork truck and freight elevator. The 4½-in. legs of the containers allow ample clearance for all standard lifting and transporting equipment.

In the balcony area, a battery of four discharge units, called Tote Tilts, convert the bins to discharge hoppers. The mechanism tilts each bin at 45° to discharge the contents to a screw conveyor.

Gasket Prevents Dust—During discharge, the bin door opening is tightly sealed by its connection with the gasketed Tilt to prevent dust fallout. Complete discharge is in-

sured, since the bins have no interior seams and all corners are radiused to guarantee full flowout.

The four discharge units automatically discharge various irons into process in desired quantities, controlled by pre-set scales and pushbuttons. Since four different materials are used, each unit must dump a different quantity from its bins into the 10,000-lb batch operation.

Automatic scales and cutoff insure accuracy within 2 lb in 10,000. The bins discharge their pre-set amounts into a screw conveyor, thence to a vibrator, another conveyor, and shaker screen to the blender.

Hoppers Fit Cycle—After blending, the intimately mixed powders empty into hoppers. The hoppers appear quite similar to the bins from the exterior, but are modified to gravity-discharge through a bottom opening controlled by a manually-operated butterfly valve.

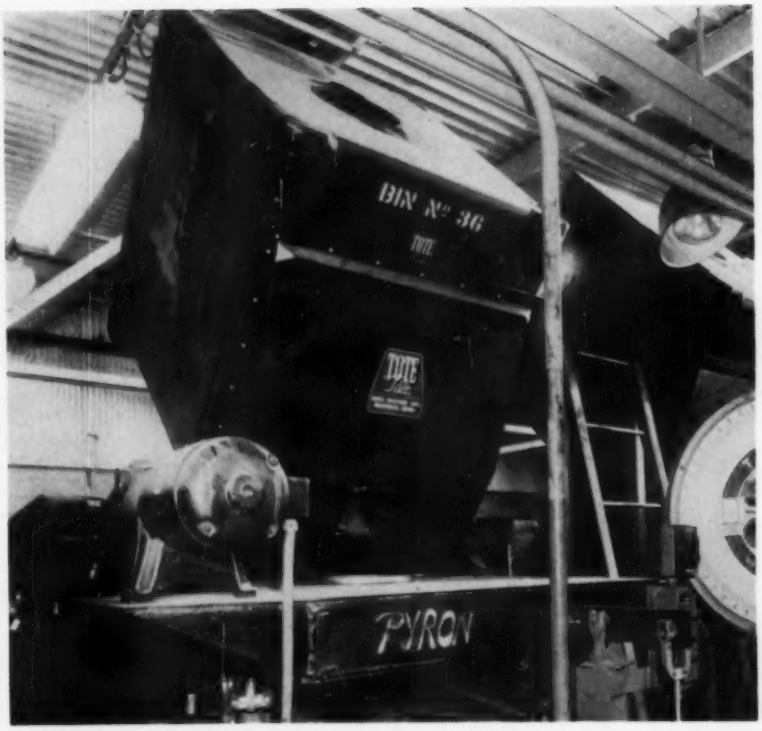
Although they have no front discharge openings as do the bins, they are filled in the same manner through a top opening which is later sealed with a gasketed cover.

The interior of the hoppers is conical, thus accounting for their lesser capacity. Like the bin, all inside parts are without seams to insure complete flowout of material.

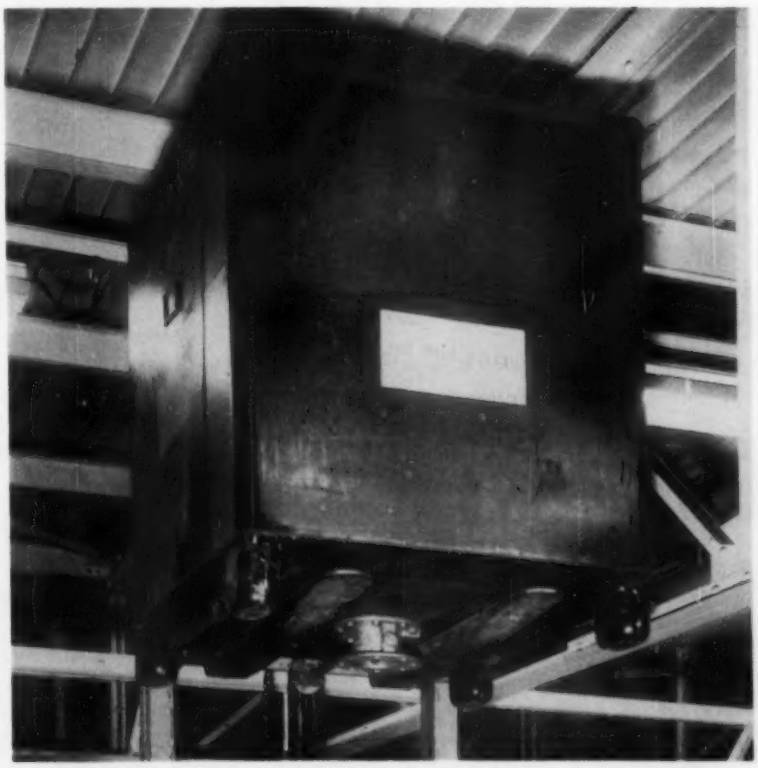
The hoppers discharge the powders into a chute which carries them directly to briquetting presses. A series of 36 hoppers in four rows feeds the presses from the balcony area.

In-Plant Use Only — Lest the similar appearance cause a hopper to be shipped to a supplier, each is labeled on all four sides: "Do not ship." Like the bins, the hoppers have 4½-in. legs for easy transportation by standard lifting equipment. They also can be tiered to save warehouse space.

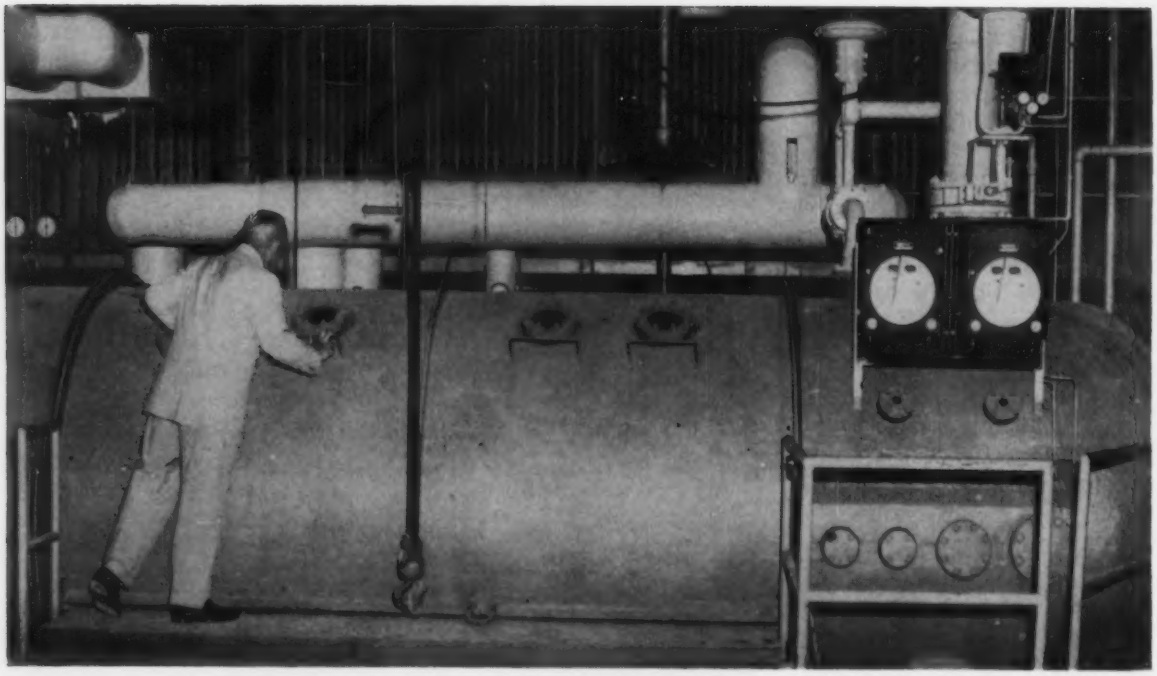
With pushbutton operation, three batches, or 15 tons, can be mixed on one shift. Full processing of a batch, from bin to the blender, and from hopper to the presses, takes a little under three hours.



PREVENTS DUST: The tight seal between bin door opening and gasketed discharge mechanism prevents dust fallout.



GRAVITY DISCHARGE: Interior of hopper is conical so that contents will flow out through bottom opening controlled by butterfly valve.



CHECKOUT: Altitude chamber simulates operating conditions for components before they are assembled.

Altitude Tests Prove Reliability

Engineers in the missile industry once dreamed about one-shot operation of units with no repeat performance required.

But they found out that this puts tremendous stress on reliability.

It calls for more refined testing methods and equipment.

▪ Each step ahead in aircraft and missiles is accompanied by an increased emphasis on testing. There's a constant balance between weight penalties through over design on the one hand and unreliability through inadequate safety margins on the other.

Realizing the importance of reliability, Janitrol Aircraft Div., Surface Combustion Corp., included a comprehensive altitude test chamber in the firm's new Columbus, O., plant. The unit is one of the largest of its type and is one of the few privately owned facilities available full-time for research and testing of commercial products.

Simulates Conditions—Tests already run have simulated conditions at better than 22.7 miles up. The chamber, a cylinder measuring 20 ft long by 6 ft diam, tests such components as duct couplings and supports, heat exchangers and pneumatic controls.

Many kinds of tests may be performed, including high altitude, low and high temperature, and sea level tests. One feature of the chamber is its heat rejection rate while maintaining altitude conditions.

It's capable of testing an aircraft heater generating 1,000,000 Btu per hour, while temperature in the chamber is held at -65°F with the simulated altitude at 80,000 ft. That's the equivalent of about 120 tons of refrigeration capacity.

One Man Operates—All components of the system tie in with a central station. One operator can set the exact environmental conditions required.

Automatic alarms warn the operator of critical temperature or pressure conditions. Operating variables are measured and recorded on chart recorders.

The vacuum system consists of three vacuum pumps. When combined they can create the very high altitude conditions. Two of the pumps alone can draw off 3000 cfpm to simulate 30,000-ft altitude.

A dehumidification system prevents the formation of frost on refrigeration coils. It makes possible tests of long duration without interruption for defrosting.

For heat tests up to 900°F, several heaters consisting of five-pass stainless steel tube bundles are heated by natural gas.

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straight side single point presses

for drawing, forming, trimming or blanking.

capacities from 50 to 600 tons

Photo courtesy of Long Manufacturing Division, Borg-Warner Corporation, Detroit, Michigan. Minster S1-500 Press used in production of clutch coverplates for the automotive industry.

THE MINSTER MACHINE COMPANY
Minster, Ohio

MINSTER

"We switched over to Columbia- within the first 22 weeks

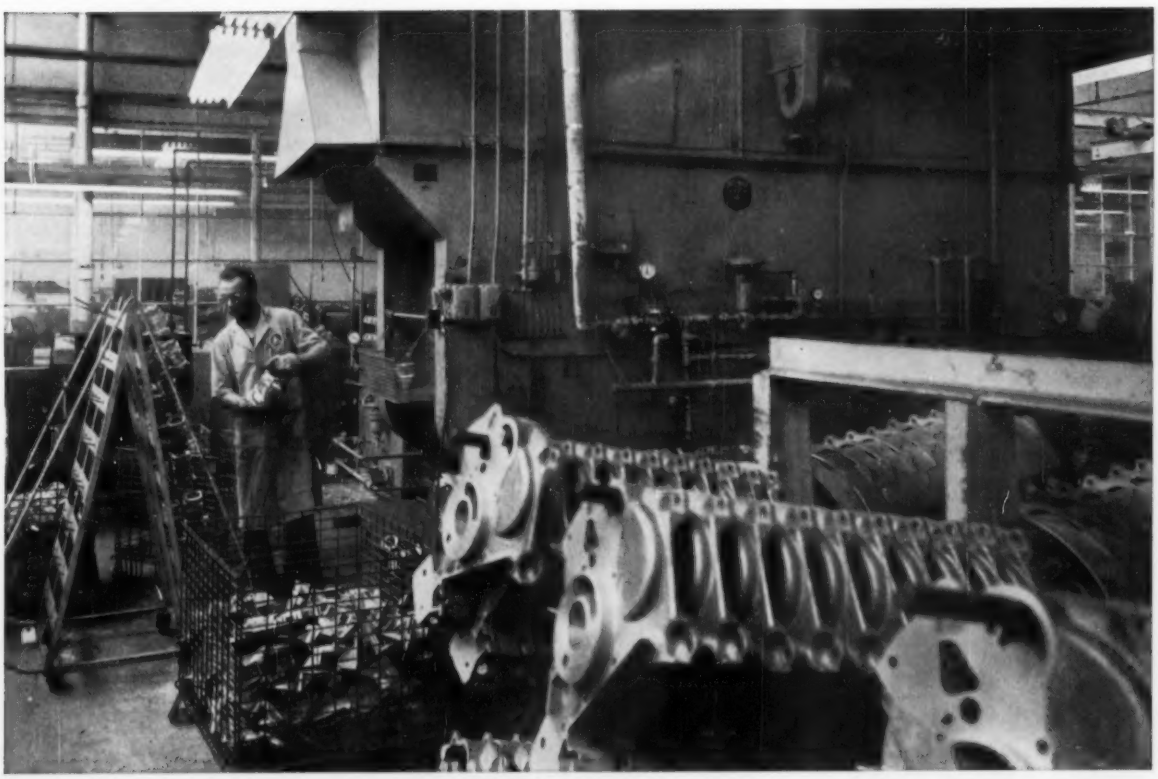
says Mr. Bernard Rosebrough
Plant Engineering Project Coordinator
McCulloch Corporation
Los Angeles 45, California

"We'd tried four other degreasing solvents, so I have a real basis for comparison. For example, within 22 weeks after putting in Columbia-Southern Trichlorethylene, we'd cleaned out each of our six units just once. With all the other solvents used, our degreasers needed cleanout and fresh solvent every three weeks. We now make one changeover, instead of eight for the same period. Our net savings on man-hours for maintenance alone, without counting loss of production, added up to $2,100.

"Here's the plant, at 6101 West Century Boulevard. We produce our own line of McCulloch Chain Saws, Scott-Atwater Outboard Motors, Superchargers for custom cars, and four-cylinder drone engines for military target ships.

"This is the Model 55, one of our most popular chain saws. We run magnesium, aluminum and steel parts through the degreasers in producing all of our saws and other products. That's one reason why we insist on high solvent uniformity and purity.

Southern Trichlor and saved $2,100 just on maintenance costs alone!"



"Here's the 'big boy' of our six degreasing units. It's part of our sub-assembly operation. You can imagine what happens to production when it's shut down for cleanout. Figure two men for 16 hours to do a complete drain, clean, refill—see why I like a solvent that keeps a degreaser like this in action? Another big point. A year ago we had a fire in this unit that caused more than $6,000 damage. We believe that Columbia-Southern Trichlorethylene's stability makes it a safer solvent, and reduces fire hazard to a minimum.

"Look like I'm sold on one particular solvent? Well, how about this: Columbia-Southern's Trichlor lets us operate our units ten degrees higher than we felt safe in going with any other solvent tested here. You know what this means: more contaminant saturation, faster cleaning, less solvent used. And I like the dependable delivery and good servicing the jobber and Columbia-Southern's District Sales Office provide."

For more information, contact our Pittsburgh address or any of the fourteen Columbia-Southern District Sales Offices

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

A Subsidiary of Pittsburgh Plate Glass Company

One Gateway Center, Pittsburgh 22, Pennsylvania DISTRICT OFFICES: Cincinnati, Charlotte, Chicago, Cleveland, Boston, New York, St. Louis, Minneapolis, New Orleans, Dallas, Houston, Pittsburgh, Philadelphia, San Francisco IN CANADA: Standard Chemical Limited

FREE TECHNICAL LITERATURE

New Catalogues And Bulletins

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 99.

Heating Oven

Featuring a "circle-of-heat" design, a new 115 (or 230) volt oven is outlined in a data sheet. The oven heats fast; temperature is uniform. (Hevi-Duty Electric Co.)

For free copy circle No. 1 on postcard p. 99

Work Positioners

A 24-page booklet tells how one firm's work positioners can cut costs and improve precision. (Pratt & Whitney Co., Inc.)

For free copy circle No. 2 on postcard p. 99

Drill Sharpener

Special drill points can be generated on a new relief grinding fixture. A 4-page bulletin gives details. (Steptool Corp.)

For free copy circle No. 3 on postcard p. 99

Tracer Lathe

An attachment that turns lathes into tracer units is detailed in a new bulletin. (True-Trace Sales Corp.)

For free copy circle No. 4 on postcard p. 99

Automation

Planning for flexible automation is discussed in an 8-page bulletin. It defines flexible automation as "use of numerically-controlled machines to make possible the economic production of job-lot orders and prototype development." Five steps to set up this type automation are suggested. (General Electric Co.)

For free copy circle No. 5 on postcard p. 99

Fire Safety

A handbook outlines ways to maintain, protect, recharge, and inspect fire extinguishing equipment commonly used in the metalworking industry. It contains 42 pages. (Fire Equipment Mfrs.' Assn.)

For free copy circle No. 6 on postcard p. 99

Chem-Milling Castings

Chemical milling of cast parts is discussed in a brochure. It tells how chem-milling removes selected areas of metal from cast parts. Or it can reduce over-all weight of castings. (U. S. Chemical Milling Corp.)

For free copy circle No. 7 on postcard p. 99

Strapping Tools

New steel-strap machine accessories increase operator efficiency, a bulletin says. They suspend strapping machines in all conceivable positions. They make tools more portable, too. (Signode Steel Strapping Co.)

For free copy circle No. 8 on postcard p. 99

Bar Stock

Cold finished bars in 23 types are listed in a 4-page bulletin. It reviews carbon steel bars' mechanical properties, formability,

weldability, heat-treat response, machinability, relative cost, shapes and sizes. (Joseph T. Ryerson & Son, Inc.)

For free copy circle No. 9 on postcard p. 99

Phosphor Bronze

A bulletin introduces a new phosphor bronze. Ductility is 200 pct or more than normal with no loss of tensile strength, it says. (Rolling Mill Div., The Miller Co.)

For free copy circle No. 10 on postcard p. 99

Vacuum Furnaces

A flash bulletin says a fabricator is ready to build vacuum furnaces to customer requirements. (Zak Machine Works, Inc.)

For free copy circle No. 11 on postcard p. 99

Gear Generator

Literature reviews assets of a unique gear generating machine. It produces large quantities of similar gears. (Sykes Machine & Gear Corp.)

For free copy circle No. 12 on postcard p. 99

Castings

Question-and-answers on castings appear in a 30-page booklet. It lists advantages and uses of malleable iron, pearlitic malleable iron, gray iron, aluminum and magnesium. (Dayton Malleable Iron Co.)

For free copy circle No. 13 on postcard p. 99

Electric Motors

Current prices, data, and drawings are contained in a 4-page condensed catalog. It covers fractional and integral motors from 1/20 through 200 hp. New dc motors from 182 through 586 frame are included. (Marathon Electric Mfg. Corp.)

For free copy circle No. 14 on postcard p. 99

Arbor Spacer

Literature introduces a new adjustable arbor spacer. This can reduce set-up time 75 pct, eliminating trial-and-error methods. It enables assembly of cutters, collars and spacers to desired widths

FREE LITERATURE

with infinite adjustment of the dial. (O K Tool Co., Inc.)

For free copy circle No. 15 on postcard p. 99

Steel Plastic

A combination 80 pct steel and 20 pct plastic is described in a 12-page bulletin. Easy to use as modeling clay, it forms into any shape. No heat or pressure is necessary. Two hours after adding a hardening agent, it gets strong, tough and rigid—like a piece of metal. Bulletin discusses uses. (Devon Corp.)

For free copy circle No. 16 on postcard p. 99

Anodizing

How one machine anodizes automobile parts many different colors is described in 4-page leaflet. (Hanson-Van Winkle-Munning Co.)

For free copy circle No. 17 on postcard p. 99

Wrought Iron

"4-D Wrought Iron, A New Dimension in Corrosion Control" is an 8-page booklet. It introduces a new product that's 25 pct more non-corrosive than standard wrought iron. (A. M. Byers Co.)

For free copy circle No. 18 on postcard p. 99

M_0S_2 Lubricants

For reading by machine shop personnel, a compact leaflet shows where and how "Molykote" lubricants should be applied. It indicates equipment on which the materials promise to excel, application methods, and benefits. (Alpha-Molykote Corp.)

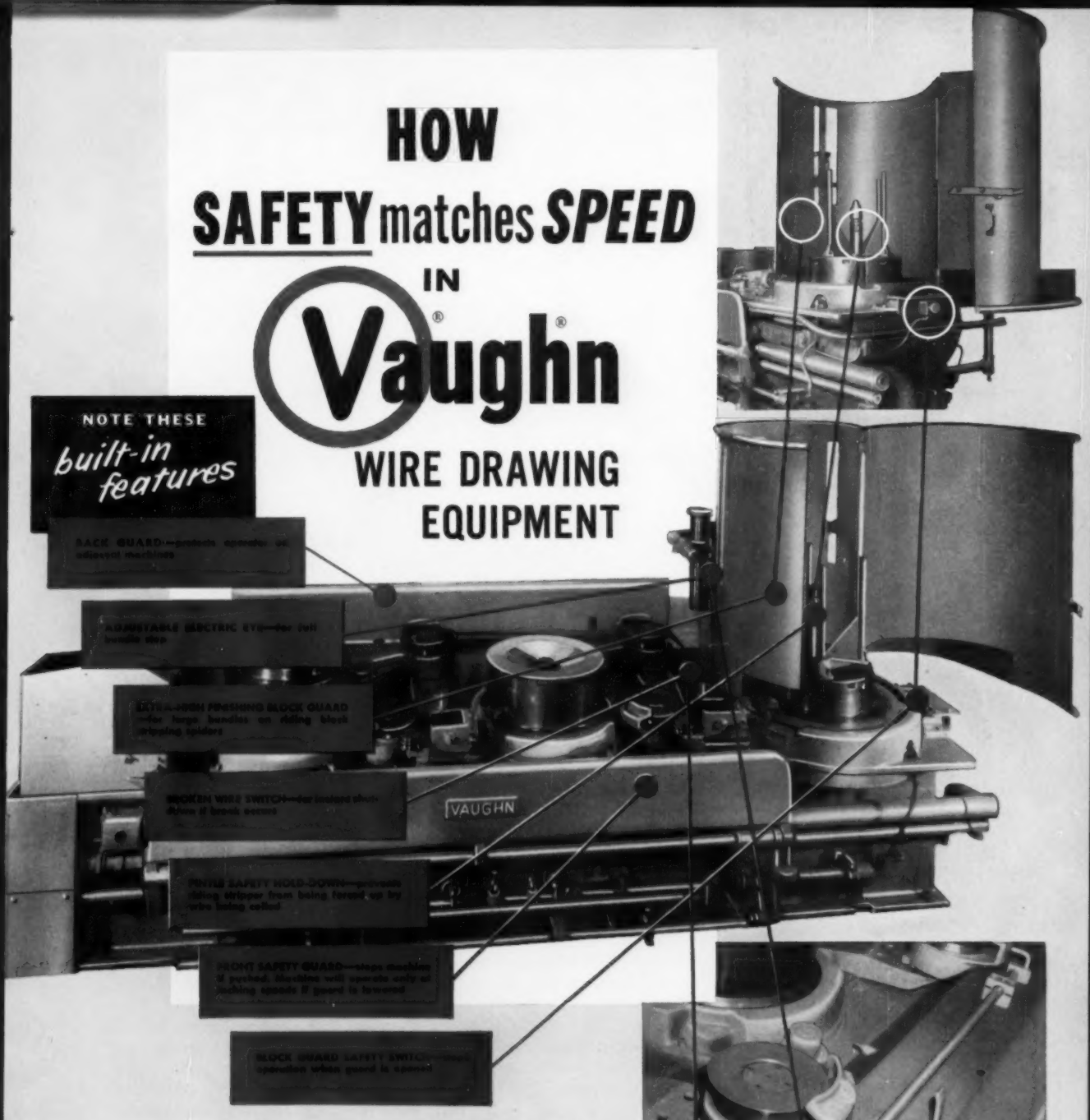
For free copy circle No. 19 on postcard p. 99

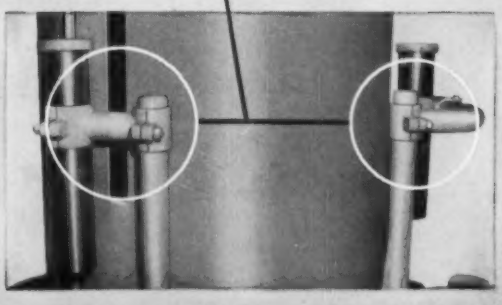
Slitting Knives

Rotary slitting knives are featured in a 48-page bulletin. Also covered: trimming knives, spacers, pipe and tube cut-off knives, scarfing tools, edging rolls, forming rolls, single plug and multiple roll forming tools, scrap chopper blades; also standard and special types of high speed steel and carbide tipped milling cutters. (Cowles Tool Co.)

For free copy circle No. 20 on postcard p. 99

HOW SAFETY matches SPEED IN Vaughn WIRE DRAWING EQUIPMENT





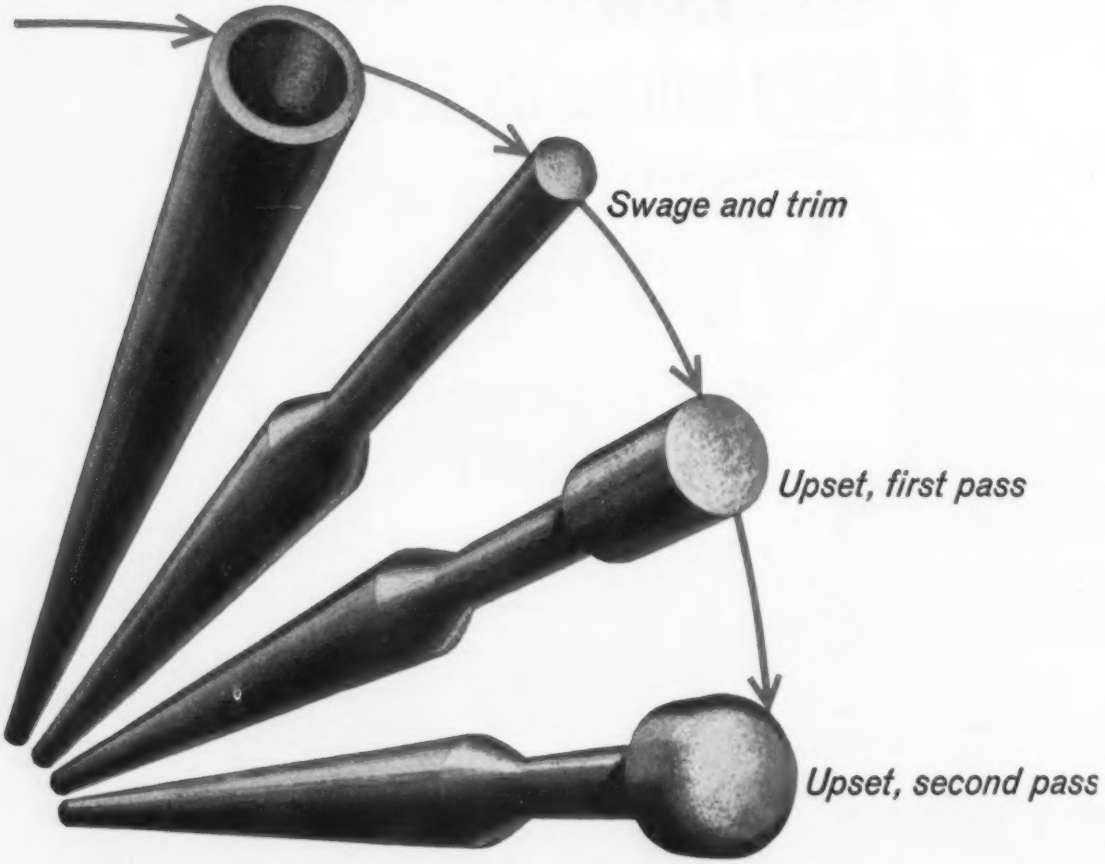
SAFETY for men and equipment is engineered thoroughly into Vaughn Wire Drawing Machinery—in every type, in every model. The high operating speeds of modern Vaughn machines are *safe* speeds because of this engineering. Our Motoblox, Motoblocs, Ringblox and other equipment are designed to match *productivity with protection* over the widest range. Let us detail our many safety developments, at your convenience.

"Quick on the Draw!"

The VAUGHN MACHINERY COMPANY
CUYAHOGA FALLS, OHIO

COMPLETE COLD DRAWING EQUIPMENT—Continuous or Single Hole . . . for the Largest Bars and Tubes . . . for the Smallest Wire . . . Ferrous, Non-Ferrous Materials or their Alloys.

Start with OSTUCO TUBING



and end up with a 34% *saving*

Here's a cost-cutting case history right in the Ohio Seamless mill. It proves we take our own medicine—*and like it.* You may, too.

Formerly, mandrels for rolling Ostuco Tubing on our Assel mill were made from two pieces. A shaped end, hogged out of solid bar stock, was welded to a long tube. Expensive to machine, weld and process.

We decided to *forge the mandrels entirely from Ostuco Seamless Steel Tubing.* In three steps—swage, upset and finish-form—we now produce better mandrels . . . ready for use without any machining whatsoever, *and save 34% over former processing methods.*

Chances are good that Ostuco Tubing is the right prescription for slashing your production costs, too. For expert advice, contact our nearest sales office or our plant at *Shelby, Ohio—Birthplace of the Seamless Steel Tube Industry in America.*

AA-7225

SALES OFFICES: Birmingham • Charlotte • Chicago (Oak Park) • Cleveland Dayton • Denver • Detroit (Ferndale) • Houston • Los Angeles (Lynwood) Moline • New York • North Kansas City • Philadelphia (Wynnewood) • Pittsburgh Richmond • Rochester • St. Louis • St. Paul • St. Petersburg • Salt Lake City Seattle • Tulsa • Wichita

CANADA: Railway & Power Engr. Corp., Ltd.

EXPORT: Copperweld Steel International Company
225 Broadway
New York 7, New York

FIFTY YEARS
OSTUCO
OSTUCO TUBING
1908 1958

OHIO SEAMLESS TUBE DIVISION

of Copperweld Steel Company • SHELBY, OHIO

Seamless and Electric Resistance Welded Steel Tubing • Fabricating and Forging

FREE LITERATURE

Continued

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

Lead Pot Furnaces

Features of lead pot furnaces are reviewed in a bulletin. These furnaces harden and temper various steels in a fast heating liquid at 750° to 1600°F. (C. I. Hayes, Inc.)

For free copy circle No. 21 on postcard

Handling Films

An industrial truck maker's new brochure describes 17 available motion picture films. They depict materials handling systems. (Clark Equipment Co.)

For free copy circle No. 22 on postcard

Self-Locking Nuts

An 18-page handbook reviews standard and miniature clinch nuts. These nuts fasten avionic, electronic and electrical equipment. (Elastic Stop Nut Corp.)

For free copy circle No. 23 on postcard

Measuring Valve

Precision measuring valve systems outlined in a bulletin solve problems in dispensing of fluid and semi-fluid materials. The systems speed assembly operations. Applications include: filling gear cases, small transmissions, machine bearings, electric motor bearings, and applying insulation and sealing compounds. (Lincoln Engineering Co.)

For free copy circle No. 24 on postcard

Welding Wire

Containing 84 pocket-size pages, a new book has answers to practically any question about welding wire. For use with a gas-shielded metal arc welding process, it presents types, diameters, packaging data, chemical and mechanical properties, and operating procedures. (Air Reduction Co., Inc.)

For free copy circle No. 25 on postcard

Arc Welding

New literature describes "the most outstanding development in arc welding in the last 30 years." It introduces a manual arc welding process. (Bernard Welding Equipment Co.)

For free copy circle No. 26 on postcard

Wire-cloth Strainers

An engineer's manual deals with wire cloth strainer design. Various wire-cloth grades are explained. Separate sections cover mesh and wire size and materials available. (Michigan Wire Cloth Co.)

For free copy circle No. 27 on postcard

Steel Buildings

Pre-engineered steel buildings shown in a brochure are actually in color. A color guide in the brochure shows design possibilities and color combinations that can be used on different types of industrial and commercial buildings. They come in blue, rose, green, bronze, white and gray. (Stran-Steel Corp.)

For free copy circle No. 28 on postcard

Excavators

"Formula For High Production," is a new booklet describing tracked excavators and attachments. (Caterpillar Tractor Co.)

For free copy circle No. 29 on postcard

Welding Fittings

Seamless welding fittings and forged steel flanges are covered in a folder. It explains how to save time and money by ordering fittings and flanges which are produced to close dimensional tolerances. (Tubular Products Div., Babcock & Wilcox Co.)

For free copy circle No. 30 on postcard

Filters

A 132-page filter engineering and application reference manual

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 8/14/58

Circle numbers for Free Technical Literature or Information on New Equipment:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70

If you want more details on products advertised in this issue fill in below:

Page ..... Product .....

Page ..... Product .....

Page ..... Product .....

PLEASE TYPE OR PRINT

Your Name .....

Title .....

Company .....

Co. Address .....

City ..... Zone .....

State .....

FIRST CLASS PERMIT No. 36 New York, N. Y.

BUSINESS REPLY CARD

No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

THE IRON AGE

Post Office Box 77
Village Station
NEW YORK 14, N. Y.

BUSINESS REPLY CARD

No postage necessary if mailed in the United States

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NEW YORK 14, N. Y.

FIRST CLASS PERMIT No. 36 New York, N. Y.

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 8/14/58

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11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
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Page .....Product .....

Page .....Product .....

PLEASE TYPE OR PRINT

Your Name .....

Title .....

Company .....

Co. Address .....

City ..... Zone .....

State .....

FREE LITERATURE

deals with filters for lubricating oils, gasoline, jet fuels, hydraulic fluids, compressed air, gases, de-icing fluids, air conditioning systems, test stands and refueling installations. (For free copy write on company letterhead to Filter Div., Bendix Aviation Corp., 434 W. 12 Mile Rd., Madison Heights, Mich.)

Truck Attachments

Scoop and ram attachments for one maker's lift trucks are described in new literature. (Hyster Co.)

For free copy circle No. 31 on postcard

Diecast Wing Nuts

Following introduction of its first standard specifications for diecast zinc alloy threaded fasteners, a firm has just issued a second group of spec sheets. These cover: high, low, capped, and washer-base wing nuts. (Gries Reproducer Corp.)

For free copy circle No. 32 on postcard

Gasoline Engines

Two revised bulletins describe two-cylinder and four-cylinder air-cooled gasoline engines. (Hercules Motors Corp.)

For free copy circle No. 33 on postcard

Air-Power Pumps

A large valve producer has just issued a digest catalog. It's a 20-page condensed version of the firm's annual catalog. It also presents fundamentals of pneumatics and various applications of compressed air. (Ross Operating Valve Co.)

For free copy circle No. 34 on postcard

Cutting Tools

Compressing the 57-year history of a cutting toolmaker into a few paragraphs, a new bulletin begins with the invention of the first toolholders and interchangeable tool bits. It runs through to present multi-diameter tools, two and three-step boring heads, trepanning tools, and gang cutters for slab milling. (O K Tool Co., Inc.)

For free copy circle No. 35 on postcard

Tracer Miller

Data on a new double column bed type milling machine appears in a 6-page folder. (For free copy write on company letterhead to George Gorton Machine Co., Racine, Wis.)

For free copy circle No. 36 on postcard

Pumps

Pumps are the subjects of a quick-reference wall chart. The 24 x 37-in. poster covers submersible and portable centrifugal pumps. (Kenco Pump Div., American Crucible Products Co.)

For free copy circle No. 37 on postcard

Voltage Regulators

A 4-page brochure illustrates magnetic voltage regulators. It can serve as a technical manual. (Sorensen & Company, Inc.)

For free copy circle No. 38 on postcard

Air Lines

Flexible, armored, multiple-tube transmission line is described in a 4-page product specification. This line serves pneumatic and hydraulic metering and control systems. (Bailey Meter Co.)

For free copy circle No. 39 on postcard

Motor Insulation

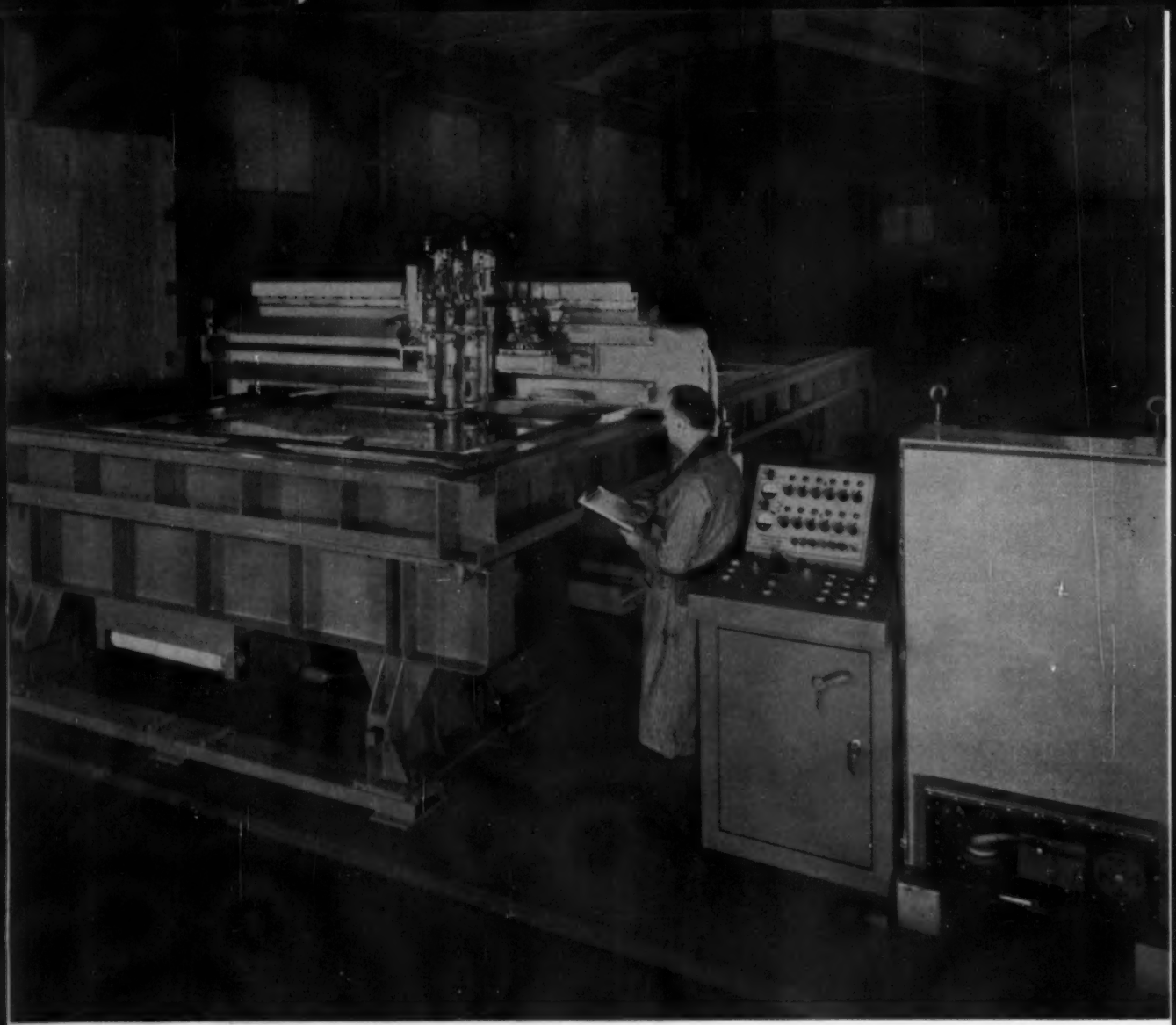
Impervious insulation for motor and generator stator coils is introduced in a 6-page folder. The insulation has a semi-organic silicone elastomer base. (Allis-Chalmers Mfg. Co.).

For free copy circle No. 40 on postcard

Tracer Millers

Tracer-controlled milling units are described in a 6-page bulletin. These building-block machines can be mounted, fixtured and operated in any plane. (Colonial Broach and Machine Co.)

For free copy circle No. 41 on postcard



Largest Automatic Precision Drill Locates, Drills and Counterbores Holes at Record Speeds

TAPE CONTROLLED MACHINE HAS AN ACCURACY OF .005" IN FULL 108" X 200" TRAVEL

Designed for aircraft work, the McKaymatic is a two dimension positioning and drilling machine that mounts three drill units on a gantry type carriage, permitting a selection of hole sizes or counterbores in a fixed work piece 9' x 16'.

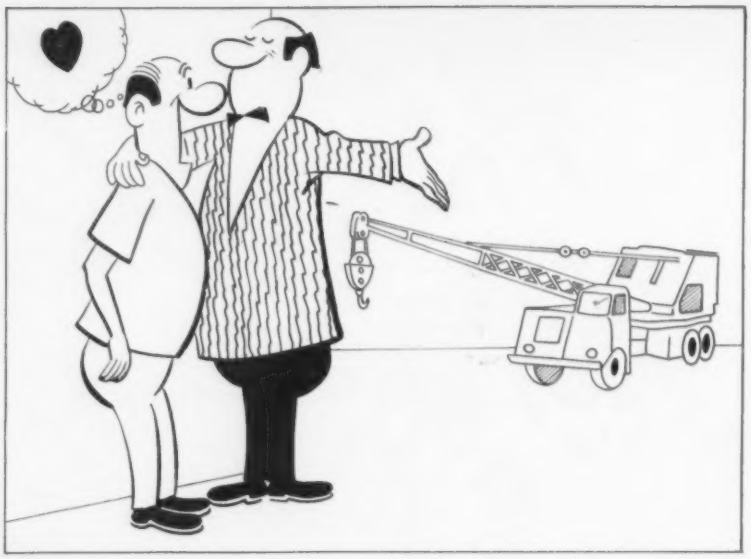
Hole locations are programmed by an engineer. This data is converted into a binary code on an 8 channel 1" wide paper tape. A tape reader and decoder relays the command information through a numerical, 2 dimension positioning control to servo drives in each axis. "Farrand Inductosyn Scales" mounted on the machine locate the drills to within .005" in the full 108" (y) and the 200" (x) axis travel.

A "zero" offset unit incorporated in the control system permits fast set-up. Templates are eliminated . . . layout time and human errors are eliminated . . . floor space requirements are kept to an absolute minimum.

Because the machine can work efficiently on short runs, and can be instantly "changed over" to other work, it will cut drilling costs in many metal working applications.

It's problem solving of this type that has made McKay an outstanding name in the aircraft, automotive, fabricating and steel industries. *The McKay Machine Company, Youngstown, Ohio.*

McKAY McK MACHINE



You Arbitrate It!

FOLLOW THAT CRANE

From the files of
the American Arbitration Assn.

■ For two years, Tony P. was crane hitcher in a structural steel plant. Though he received top pay for his job, he wasn't satisfied. Once, working for another firm, he ran a crane; he liked it very much, too. If he could be a crane operator again, he thought, he would be happy.

A big chance seemed to come when an operator moved to another shift. This left a vacancy. Tony's bid was among the first when the job was posted on the bulletin board.

Management rejected his bid. "The contract doesn't require us to accept 'horizontal' bids," explained the personnel manager. "You are now in the same labor grade and getting the same rate as the crane operator. The bidding system is intended only for upgrading to more desirable jobs."

Money Isn't Everything—"If I want to be a crane operator, that makes it a more desirable job for me," Tony answered. "Who ever said that money was the only way to judge whether a transfer would be a promotion or not?"

The company appreciated Tony's qualifications and strong feelings. So it gave him the job. However, it did not concede the union agreement compelled them to do so.

Tony's grievance was resolved. But the union also wanted employees' rights under the contract clarified. So it went to arbitration.

The Arbitrator Ruled:

He said if he upheld Tony's "promotion idea" an employee could bid for any job merely by saying he liked it better than what he was doing. Wage scales, he concluded, might not be the only way to judge promotions; however a transfer cannot be classified a promotion "simply because one man at a given time may, for personal reasons of his own, prefer it over the one he is now doing."

Caution: The award in this case is not necessarily an indication of how arbitrators might rule in apparently similar disputes. Each case is decided on the basis of the particular history, contract, testimony and other facts involved. Some of these essential details may have been omitted in condensing the original arbitration for brief presentation.

NEW FILMS

"The Price of Eggs" speaks dollars and sense to machine users. It has no sales pitch; only axe-grinding is the practical story that new machines often work cheaper than old ones. Interesting and awakening, it doesn't suggest you scrap all your equipment; rather it stresses using the same common sense in purchasing new items as you use in other phases of business dealings. 17min. Color, sound. Jones & Lamson Machine Co., Dept. 710, Springfield, Vt.

"Tool of Many Uses" covers automatic welding. Action shots show everything from welding thin aluminum water truck tanks to joining huge copper vessels. 18min. Color, sound. Air Reduction, 150 E. 42nd St., New York 17.

"Precision Broaching for Production and Profit" aims at engineers. It starts with simple, basic broaching machines. Climax shows intricate automated, high production units. Close-ups illustrate economic simplicity of broaching, suggesting ways your shop may cut costs, up output. 30min. 16mm color, sound. Educational Pgm. Dir., Lapointe Machine Tool Co., Hudson, Mass.

"The 450 Ton Lift" is an engineering report on the raising of a 450-ton, 314-ft long offshore oil platform support. It's technical but understandable. 11min. 16mm color, sound. M. W. Kellog Co., 711 3rd Ave., New York 17.

"Laying It On The Line" is a brief lesson on production-line insulating. 15min. Color, sound. Armstrong Cork Co., Lancaster, Pa.

"Arbitration In Action" has a self-explaining title. 58min. 16mm sound. (Prices available from American Arbitration Assn., 477 Madison Ave., New York 22.)

"3 Dimensional Drafting" shows 3-D methods advantages over flat plane or orthographic drawings. 16-mm sound. John R. Cassell Co., 110 W. 42nd St., New York 36.

Tubing Solves Heat Problems

Heating 600 lb of 700°F air a minute creates problems for heat exchanger builders. Corrosion, carbide precipitation are two.

So builders take care to pick best materials, tubing layouts, and fabrication methods.

■ A four-stage stainless tubing heat exchanger recently built raises temperatures of 560 lb of air per second. It heats from 350 to 700°F for a manufacturer of jet aircraft engines. The unit aids a gas-turbine engine test program.

Heating this tremendous volume of air requires four fired heat exchangers. These are 18-ft long x 15-ft wide x 15-ft high. In each stage 405 20-ft U-shaped lengths of Type 321 welded stainless steel tubing are fired directly from six high velocity oil burners. The exchanger has six miles of 1½-in. OD x 16-gage tubing (1½ mi per stage) manufactured by Alloy Tube Div., Carpenter Steel Co., Union, N. J.

Some interesting problems in material selection, tubing layout and fabrication occurred in developing this unit. Operating temperature is such that carbide precipitation and loss of corrosion resistance would occur with conventional stainless steel. The exchanger's builder, Thermal Research & Engineering Corp., selected Carpenter Type 321 stainless steel stabilized with titanium to assure trouble free service.

Use Internal Expansion—Internal expansion was used to join tubing to the headers since the working pressure of this installation is only 150 psig maximum. Tube ends are inserted into the header. A pressure roller is inserted to expand the tubing wall tightly against the header.

Internal tube expansion requires tubes enter the curved header radially. Otherwise, contact between the tube and header is an extreme elliptical shape; this could be impossible to expand to a tight connection. The end of the outer rows of tubing had to be bent in a double reverse bend to enter the headers radially.

This exchanger part contains 1½ miles of welded stainless tube.

Want More Data?

You may secure additional information on any item briefed in this section by using the reply card on page 99. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

New Illinois Tollway uses DSC Electro-Welded Wire Fabric to make concrete pavement crack-resistant, traffic-safe, durable

Through the courtesy of the Illinois State Toll Highway Commission, we are privileged to reproduce this "men at work" photograph. It is a view taken along the southbound strip of the North Illinois Tollway east of Rockford. Among the participating contractors who used DSC Portsmouth Welded Wire Fabric on this project were CK&G Associates, Skokie, Illinois; McCarthy-Mass-Dillon, Huntley, Illinois; John C. Peterson Construction Corporation, Baldwin, N. Y.

WHAT YOU SEE is called a "paving train." The huge bucket, which rides on a long reaching boom, is pouring the top layer of concrete over the reinforcing steel mesh already in place. The spreader or grader at the left is leveling this layer to a uniform depth of 4".

UNDERNEATH THE MESH is a 25-foot-wide bottom layer of concrete, previously poured from another giant mixer and mechanically "troweled" to a uniform depth of 6". In this "sandwich" the Mesh is embedded in 10" of concrete to give the aggregate crack-resistance and so prolong its useful life . . . and to give the tax-paying citizens of Illinois their money's worth in tollways.

DSC PORTSMOUTH MESH — A GOOD PUBLIC SERVANT
By reinforcing concrete, DSC Portsmouth Mesh promotes smoother, safer, faster highway driving; reduces ultimate and upkeep costs; prolongs useful life of pavements, structures, sewerage and general drainage systems; protects buildings against cracks, leaks and vermin.

Customer Satisfaction Is Our Business

For information about our new giant 156" fabric machine and how it expands the uses of DSC Mesh . . . or about DSC Rod and Wire Products . . . or DSC Sheet and Strip Steel—please write DSC General Sales Office or call your nearest DSC Customer "Rep". . . soon?

35TH ANNIVERSARY YEAR DSC

DETROIT STEEL CORPORATION

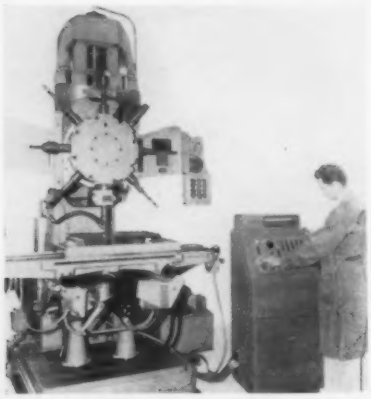
GENERAL SALES OFFICE, DETROIT 9, MICHIGAN

CUSTOMER "REP" OFFICES:
Charlotte, N. C., Chicago, Cincinnati, Cleveland, Columbus, Ohio., Dayton, Ohio., Detroit, Grand Rapids, Mich., Hamden (New Haven), Conn., Indianapolis, Jackson, Mich., Louisville, Ky., Milwaukee, Wis., New York, St. Louis, Toledo, Worcester, Mass., Winneconne, Wis.

DSC PRODUCTS: Coke . . . Coal Chemicals . . . Pig Iron . . . Basic Open Hearth Steel Ingots, Blooms, Slabs, Billets, Rods . . . HR and CR Sheet and Strip . . . Flat CR Spring Steel . . . Manufacturers' and H.C. Specialty Wire . . . Welded Wire Fabric

New Production Ideas

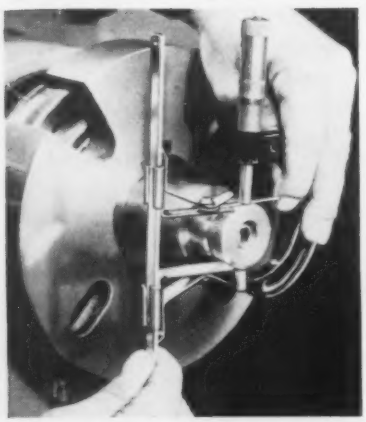
Equipment, Methods and Services



Tapes Control Drilling, Tapping and Boring

Numerical tape systems now can control one maker's large turret drills. The automated, 8-spindle machines have a 1½-in. diam capacity; tapping capacity is 1½-in. diam in mild steel. They can use an electropoint control system or a General Electric tape control unit, modified for this manufacturer's units. The standard table has 18 x 30-in. travel; it mounts directly to the main column on dovetail ways. Double jack screws support it. In addition, tables up to 30 x 45 in. are available. The table rides on a combination of flat and V-ways. Machine has 19¾-in. deep throat; clearance from spindle to table is 30 in. Some 16 such units (with 6 spindles) are in use; one user reports over $50,000 saved the first year on a $21,000 investment. (Burgmaster Mfg. Co., Inc.)

For more data circle No. 42 on postcard, p. 99



Device Holds Wire For Measuring Threads

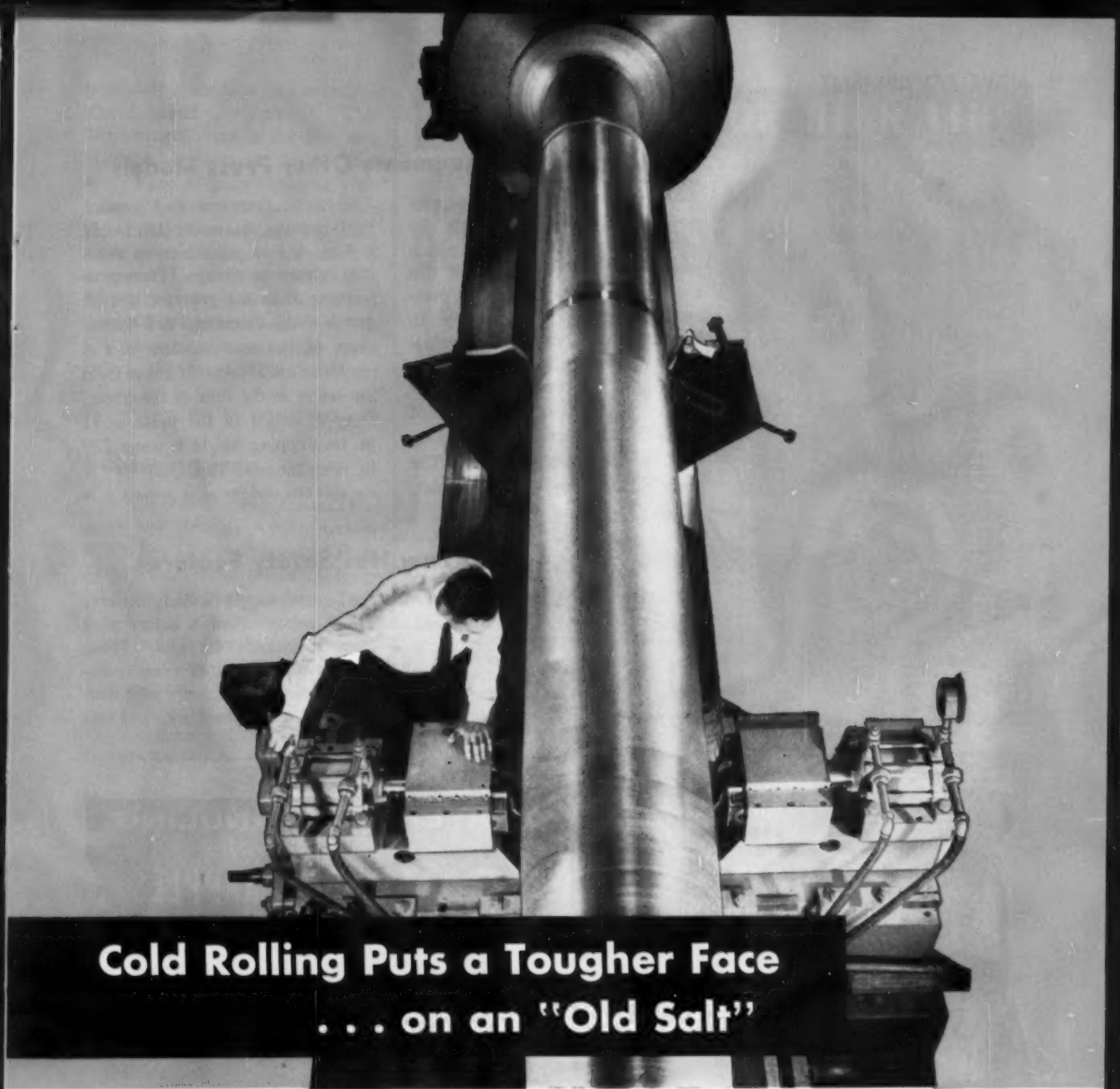
Toolmakers checking external threads often wish for a third hand. Another would come in handy while they hold the three traditional wires over the thread for micrometer measuring. A new wire holder eliminates all-too-familiar juggling of wires and mike by toolmakers, machinists and inspectors. It also does away with makeshift wire holders. The new device is a stainless steel bar with two sliding elements; these adjust up and down along the bar, under spring tension, to handle different size workpieces. Each element has a resilient pad; these hold measuring wires firm. Elements keep wires parallel to each other as they fit over the thread for easy micrometer reading. No set-screws or time taking adjustments are necessary. The wire holding device can be held by hand (for stationary work) or in a pedestal (work brought to it). (Flynn Boring Tool Co.)

For more data circle No. 43 on postcard, p. 99

Arc Welding Machines Use Direct Current

Three new arc welders are for general industrial and field use. These consist of a consumable electrode, gas-shielded welder and two water cooled, engine-driven welders. The first machine handles jobs where equal burn-off rate and wire-feed are important. Its rising volt-ampere curve reacts instantly to all wire-feed speed changes to maintain constant arc length. Current rating: 450 amp continuous; weight: 840 lb; height: 28¾ in.; width: 20⅝ in.; length: 34⅝ in. The other two units are built in 300 and 400 amp sizes. They're suited to pipeline and construction work in the field. These Hercules engine-driven machines eliminate "popouts" with any size and type of electrode. (Air Reduction Sales Co.)

For more data circle No. 44 on postcard, p. 99



Cold Rolling Puts a Tougher Face . . . on an "Old Salt"

To increase fatigue resistance, endurance limit and to fight the corrosive action of the sea, Erie Forge & Steel technicians cold roll ship's tail shafts as illustrated above. The life of the forged steel tail shaft is prolonged by cold rolling under the propeller and the after bearing. The surface toughness thus effected reduces fretting corrosion, minimizes pitting, costly failures and the hazard of propeller loss at sea.

Cold rolling is applied not only to new shafting but also for reconditioning existing ship's shafts, thus saving sizeable replacement costs in many instances.

Designed and built by Erie Forge & Steel engineers, the machine cold rolls shafts of any length and up to 30 inches in diameter. Any desired pressure up to 37,000 pounds can be exerted by the hardened steel rollers on each side of the shaft.

The Society of Naval Architects and Marine Engineers recommends that all ship's propeller shafts be cold rolled as a safety measure. This cold rolling process is approved by The Bureau of Ships, United States Navy.

Another of the special services characteristic of the continuing progress in steel improvement at Erie Forge & Steel. Let us work with you on your steel forging and casting requirements.

ERIE FORGE & STEEL CORPORATION

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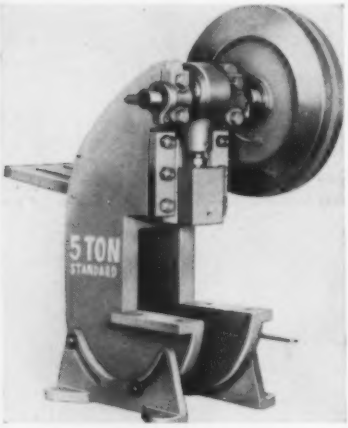
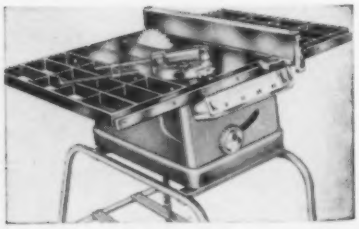


New Punch Press Augments Other Press Models

Not a replacement but a supplement to other models. This describes a new 5-ton capacity punch press. Its producer feels that this low-cost unit can augment its present 5-ton presses considerably. In handling a variety of light manufacturing operations, it possesses many features of the press builder's premium 5-ton models. Standard stroke is 1 in. However, strokes up to 2-in. long are available. The press has an alloy steel crankshaft. This is heat treated and ground. With ram up, maximum shut height is 8 in. A 1-in. adjustment is available in the ram, though. The manufacturer drills the ram for a 1-in. punch shank diameter. Bed dimensions of the unit measure 6 x 8 in. There's a 3¼-in. clearance from the center of the slide to the frame. Over-all height of the press is 31 in. Its shipping weight is some 220 lb. (Benchmaster Mfg. Co.)

For more data circle No. 45 on postcard, p. 99



Tilting Arbor Table Saw Has Safety Features

Tilting arbor table saws in a new design boast several safety features. The 8-in. saws allow precision rip and metre adjustments. This means close tolerances are possible. A locking key switch in addition to the usual toggle switch assures added safety. And a safety plug adapter grounds the saw. These table-sawing machines come complete with rip fence, metre gage with stop rods, rip fence track, and two

table slide extensions. A custom designed stand is optional. This "Shopmaster" tool is the first new machine announced under that name since its maker became a division of Energy Mfg. Co. Other machines in the company's line include several more bench saws, a new radial arm drill, band saws, jointer-planers, jig saws, bench and floor drills and accessories, including parts for all previously made units. (Shopmaster Div., Energy Mfg. Co.)

For more data circle No. 46 on postcard, p. 99

Soldering Iron

A new soldering iron boasts automatic heat control. A small section at the iron's tip is of a special magnetic alloy. When this alloy heats up it loses magnetic qualities. Then a spring at the other end of the alloy pulls it from the tip, breaking electrical contact. Allegheny Ludlum Steel Corp. supplied stainless tube for the iron's construction. (Weller Electric Corp.)

For more data circle No. 47 on postcard, p. 99

T-slot Cleaner

Designed by a working machinist, a simple tool quickly cleans machine tool T-slots. The device reduces cleanup time and speeds setting up. It also protects accuracy of precision T-slots. (Otto Kelm.)

For more data circle No. 48 on postcard, p. 99

Oil-gas Burner

Radiant pulsation-type oil-gas burners produce a powerful luminous flame. They reach a peak temperature of 3450°F burning oil. Above 3300°F is possible with 1000 Btu cu ft natural gas. Burners are available for heat release rates ranging up to 70,000,000 Btu's per hour. Key features of the burners include: fuel savings, exceptionally clean flue gas, no carbon monoxide. The burners duplicate or better heat of pulverized coal burning furnaces, their maker states. This makes them useful to steel plants and foundries. Here, air furnaces either melt or hold molten metal at pouring tem-

peratures. In one holding furnace installation, a new pulsating burner is fired with 425 Btu cu ft coke oven gas; it provides a holding temperature of 2975°F. This compares with 2650°F formerly used burners. (E. W. Bliss Co.)

For more data circle No. 49 on postcard, p. 99

Sealed Motors

Salt water and clear water tests fail to faze a new line of encapsulated motors. Using a 4 pct solution of salt in water testers ran fully loaded open motors in a tank full of it. The open-type motors ran fully

loaded submerged in salt water with no ill effects. Motor stators of such motors are super-sealed with epoxy resin. These motors can be used where moisture or contaminated atmospheres could hinder conventional insulation. (Allis-Chalmers Mfg. Co.)

For more data circle No. 50 on postcard, p. 99

Protective Coat

A "spray-off" protective coating inhibits magnesium, aluminum, iron and steel. For low-cost protection of parts or tools during manufacture and storage it sprays on. It "sprays off" too, via a cheap solvent spray or by steam cleaning. (Navan Products, Inc.)

For more data circle No. 51 on postcard, p. 99

Lubricant

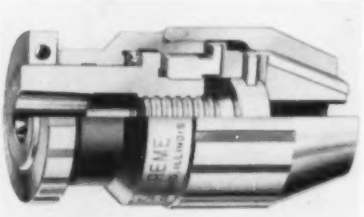
Tight-fitting parts can be assembled more easily when you use a lubricant. This includes threaded parts, too. Applied by hand to the mating surfaces a new lubricant can

also be put on by dipping or rubbing into threads. Coating pieces with this material permits precision pieces to be assembled and disassembled easily, even after high heat. (Anchor Chemical Co.)

For more data circle No. 52 on postcard, p. 99

Keyless Chuck

This precise drill chuck is keyless. It's for use on production lines or in toolrooms wherever close tolerances are a must. Chuck jaws are chrome molybdenum alloy steel. Other parts are of high quality



steels, hardened in most instances. Runout of the keyless chuck is guaranteed to be minimum. Its ball bearing construction means a 100 pct sure grip on cutting tools; yet, it allows the chuck to be opened easily with the fingers. (Supreme Products Corp.)

For more data circle No. 53 on postcard, p. 99

Metal Finishing

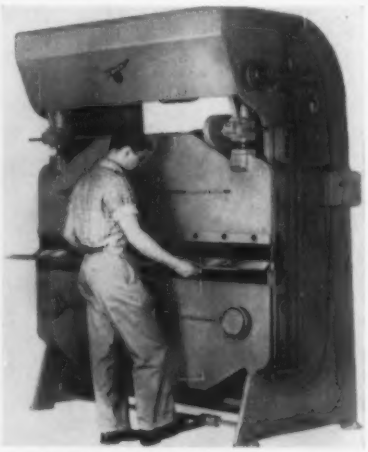
Especially for baking finishes on metal surfaces is a new copolymer of butadrene and styrene. It lends itself to formulating metal primers and gloss finish coats, both for dip and spray application. Applied to metal, the latex forms a film by fusion of resin particles. On baking it converts to a hard, tough, water and alkali resistant film with excellent adhesion to most substances. (Borden Chemical Co.)

For more data circle No. 54 on postcard, p. 99

Press Brake

Stroke of this 25-ton, 6-ft bed press brake is adjustable. Thus, the operator can pre-set the ram stroke —in less than 15 seconds—to the

narrowest opening for each job. As a result, the unit maintains an efficient production rate; rate of strokes per minute increases as the stroke or opening decreases. The press is safe to operate; chances of an operator catching his fingers or hands when the stroke is pre-set at the narrowest possible opening are nearly nil. Another key feature is a dual-speed operating cycle with a power work stroke. This auto-



matically provides two speeds to the ram during each cycle. The ram travels quickly to a pre-set point just above the work. It goes through the work part of the stroke in slow speed (with full pressure). Then it resumes fast speed on the return portion of the stroke. On forming jobs, this eliminates dangerous whipping of sheet materials, resultant kinking and work spoilage. (O'Neil-Irwin Mfg. Co.)

For more data circle No. 55 on postcard, p. 99

Grinder Control

It's pointless to grind split tenth tolerances and microinch finishes if it's necessary to force and damage the workpiece to remove it from the chuck. A new grinding team, however, eliminates this problem. The precision grinding team consists of an automatic chuck control and a magnetic chuck. These matched units provide variable holding power and a "demag" cycle. The latter completely eliminates all residual magnetism. Even the thin-

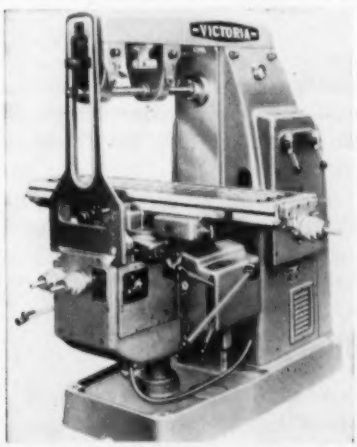
nest and most fragile workpieces can be easily removed from the chuck without distortion. The "demag" feature permits swift and thorough chuck cleaning. Even the most minute chips are speedily removed. Also, the 24-v circuit keeps the chuck cool. This is essential

for accuracy, particularly when dry grinding. Neither the chuck nor the workpiece heats up. The operator quickly selects the holding power so that every job may have the correct amount for sure, safe holding, but without distortion. (The DoAll Co.)

For more data circle No. 56 on postcard, p. 99

Milling Machine

This milling machine features a backlash eliminator, mechanical



overloads, and one-shot lubrication. Two ranges of speeds encompass 30 to 1500 rpm; feeds extend from 0.65 to 21.5 ipm. Nickelchrome hardened and ground gears run on splined shafts. An extra heavy spin-

dle carries a flywheel bullgear. The spline rests in Timken taper roller bearings. (Bentley Industrial Corp.)

For more data circle No. 57 on postcard, p. 99

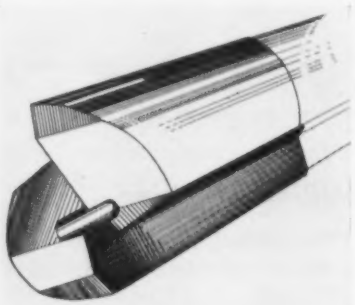
One-Coat Finish

Decorative and durable, a new one-coat organic finish can replace plating and electro-chemical coloring methods. The finish comes in brass, gold, copper, bronze and several colors. It applies easily since there's no pre-treatment of the base metal. The finish can be sprayed, dipped or roller coated. (Permatron Corp.)

For more data circle No. 58 on postcard, p. 99

Gundrills

Center-cut type, 2-flute gundrills in a new line have an enlarged coolant hole in their molded carbide tip. This hole provides a 100-pct increase in coolant flow to the two



cutting edges. Thus, it can improve surface finish of produced holes; it also prolongs tool life between grinds.

The gundrills come in ¼ to 13/16-in. diam sizes. (Star Cutter Co.)

For more data circle No. 59 on postcard, p. 99

Bearing Grease

A new bearing grease serves where high pressures and shock loads exist. Or where there's a tendency for fretting corrosion to occur. Uses: Steel mill rolls, oscillating shafts, rotary kiln bearings, crushers, gears, cams, etc. (Gulf Oil Corp.)

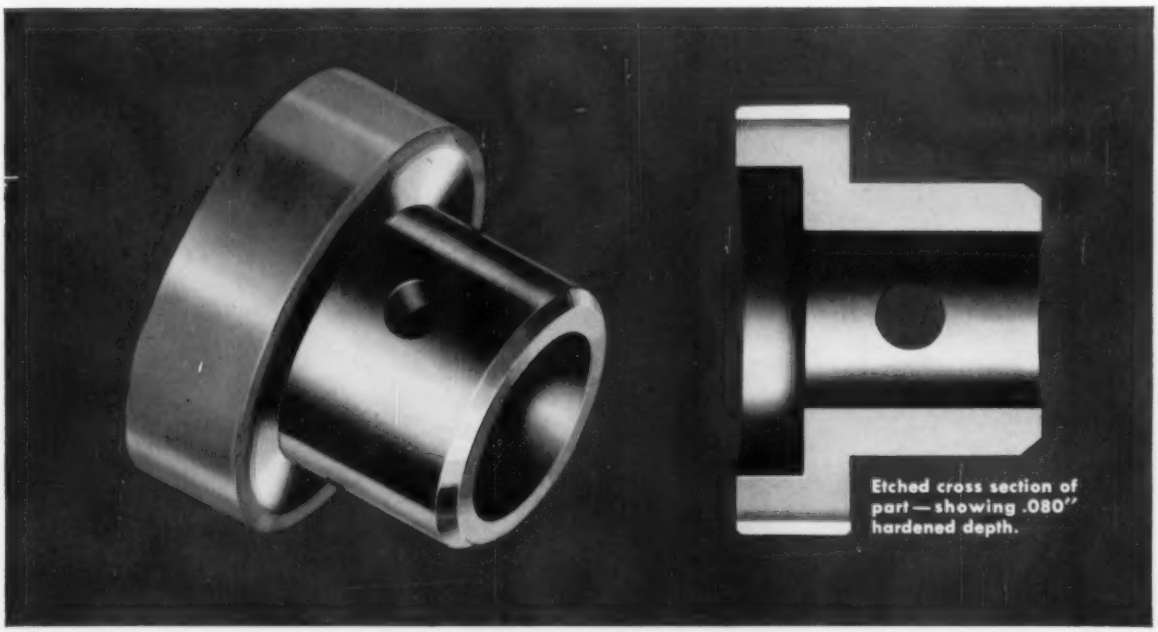
For more data circle No. 60 on postcard, p. 99

Costs Cut 94%

with

TOCCO* *Induction Heating*

A cost reduction of 94% resulted when heat-treatment of this Corn Harvester part was changed from carburizing to TOCCO-hardening. Look at the unit cost breakdown:



	CARBURIZING	TOCCO-*Hardening*	
Degrease	$0.0020	eliminated	
Carburize	0.0200	eliminated	
1st quench	0.0150	TOCCO, heat and quench	$0.0060
2nd quench	0.0150	eliminated	
Draw	0.0050	eliminated (self-draw)	
Shotblast	0.0035	eliminated	
Internal Grind	0.0243	eliminated	
External Grind	0.0166	eliminated	
	$0.1014		$0.0060

"...Savings of 9½ cents per piece—$4770.00 on each 50,000 piece batch, *plus* an hourly production increase from 120 to 300 pieces per hour, plus improved quality of the product by virtue of the deeper case and stronger core."

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Please send copy of "Typical Results of TOCCO Induction Hardening and Heat Treating."

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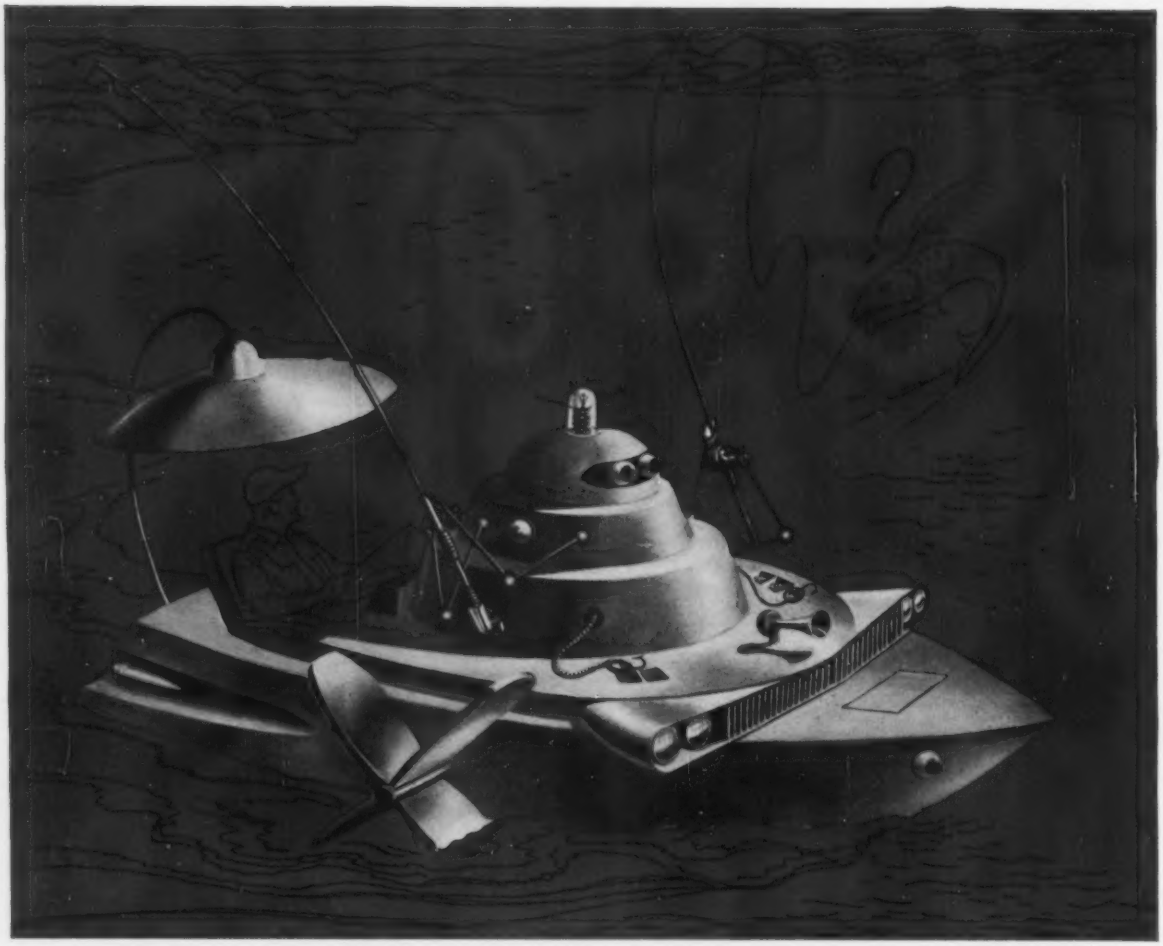

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Cold rolled strip

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A.W. ALGRIP *abrasive*
A.W. SUPER-DIAMOND *pattern*

COAL CHEMICALS

A.W. CUT NAILS
Standard & Hardened

MINE PRODUCTS
Iron ore concentrates
Iron powder
Crushed stone
Sand

COKE
Foundry, industrial & metallurgical

PENCO METAL PRODUCTS DIVISION
Steel cabinets, lockers & shelving

The Iron Age Summary

Price Rise Fails to Slow Pickup

Market shows continued improvement despite the rise in steel prices.

August may be as good as June, when order volume was swelled by price hedging.

▪ Steel price hikes have failed to halt the upward trend in steel orders. August business may be equal to June, the best month to date, when order volume was swelled by hedging against the expected price boost.

"Every single product shows an improvement," says the president of one steel firm. "August will be a better month than June." Another mill says August will be a shade under June.

Good News — An encouraging note: Most mills say the continued improvement in orders stems largely from miscellaneous users. Automotive has been of some help, but the bulge in auto orders is not expected until next month. Detroit is holding back due to unsettled labor conditions and uncertainty over demand for their new models.

Here are some of the reasons for the upturn:

Metalworking plants that had been shut down for vacations are now swinging back into production.

Farmer Is Buying—Steel user inventories are low. The trend now is to rebuild stocks on the basis of improving conditions. (See metalworking outlook, page 37.)

The farmer is loosening his purse strings. Farm implement makers are doing better. Sales of one firm are 6 to 10 pct ahead of 1957.

Home building has picked up, is now running at an annual rate of more than a million units. This in turn has caused some improvement in appliance orders.

Construction Boom — Highway construction is booming, and construction generally is holding up. There are signs that even industrial construction may take a turn for the better. Construction equipment sales have been moving up for about ten weeks.

Stainless Uncertain—U. S. Steel's decision to cut the price of stainless steel plates raises the question of whether stainless prices generally will rise. Chances are they will, but for the moment the situation is confused. Also uncertain is the outlook for steel rail prices. This market is depressed, and no one seems to be in any hurry to move prices up.

Until rail prices are adjusted, The IRON AGE Finished Steel Composite price moved up $4.42 per ton, to $123.76. A hike in rail prices would boost the Composite to approximately the average $4.50 per ton increase announced by steel firms. The Composite price is a base price.

Wire Makers Hopeful — Meanwhile, makers of wire products are hopeful of some relief from foreign competition. Some importers of wire products are not quoting on deliveries after October. The word is that an expected pickup in European demand this fall will keep foreign wire products at home.

Steel Output, Operating Rates

Production	This Week	Last Week	Month Ago	Year Ago
(Net tons, 000 omitted)	1,618	1,569	1,485	2,074
Ingot Index				
(1947-1949=100)	102.5	98.0	92.4	129.1
Operating Rates				
Chicago	71.0	68.5*	63.0	83.0
Pittsburgh	53.0	50.0*	46.0	81.0
Philadelphia	67.0	66.0	60.0	93.0
Valley	53.0	47.5*	46.0	72.0
West	70.5	72.0*	62.0	99.0
Cleveland	55.0	53.0*	46.0	90.0
Buffalo	54.0	51.0	39.0	95.0
Detroit	67.0	66.0*	57.0	50.0
South	53.5	54.5	53.5	85.0
South Ohio River	73.0	41.0	38.0	83.0
Upper Ohio River	76.0	78.0*	77.0	94.0
St. Louis	74.0	81.0*	87.0	84.5
Northeast	....	....	35.5	38.0
Aggregate	61.0	59.0	55.0	81.0

*Revised

Prices At a Glance

(cents per lb unless otherwise noted)	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel base	6.188	6.138	5.967	5.967
Pig Iron (Gross ton)	$66.49	$66.49	$66.49	$66.40
Scrap, No. 1 hvy (Gross Ton)	$41.83	$42.17	$37.50	$53.50
No. 2 bundles	$29.83	$29.83	$26.83	$43.00
Nonferrous				
Aluminum ingot	26.80	26.80	26.10	28.10
Copper, electrolytic	26.50	26.50	25-26.50	28.50
Lead, St. Louis	10.80	10.80	10.80	13.80
Magnesium	36.00	36.00	36.00	36.00
Nickel, electrolytic	74.00	74.00	74.00	74.00
Tin, Straits, N. Y.	95.25	95.75*	94.00	94.375
Zinc, E. St. Louis	10.00	10.00	10.00	10.00

How Kellogg Controls Its Buying

Balanced approach to purchasing is the aim of buying policy at M. W. Kellogg Co.

Most supplies are bought for job use but reserve stocks are kept for emergencies.

▪ "Making delivery on time according to specifications" is the first rule in selling engineering construction firms, H. R. Schuster, procurement chief for The M. W. Kellogg Co., told The IRON AGE.

Delivery scheduling is a fine art at Kellogg, where purchasing is an integral part of company operations. Actual buying of parts and components starts early in the design stage and continues well into actual work in the field. Most orders are delivered direct to the job site, must be there when construction crews need them. A staff of inspectors at key points around the country keeps watch on progress of orders and quality of materials.

Half the Job Cost—The stakes are high. A $45 million oil refinery would not be an unusual project, and Kellogg finds that materials account for 50 pct of the total job cost. This means a blizzard of orders. On an average contract, Mr. Schuster says 65 pct of purchase orders have an individual value of less than $1500, while total value of this group of purchases is only 3 pct of the entire material cost.

Despite the fact that most items are ordered on a job basis, the firm maintains a sizable inventory of pipe and fittings, valves and electrical supplies. This stock offers protection against underages and overages in deliveries and is a hedge against price changes.

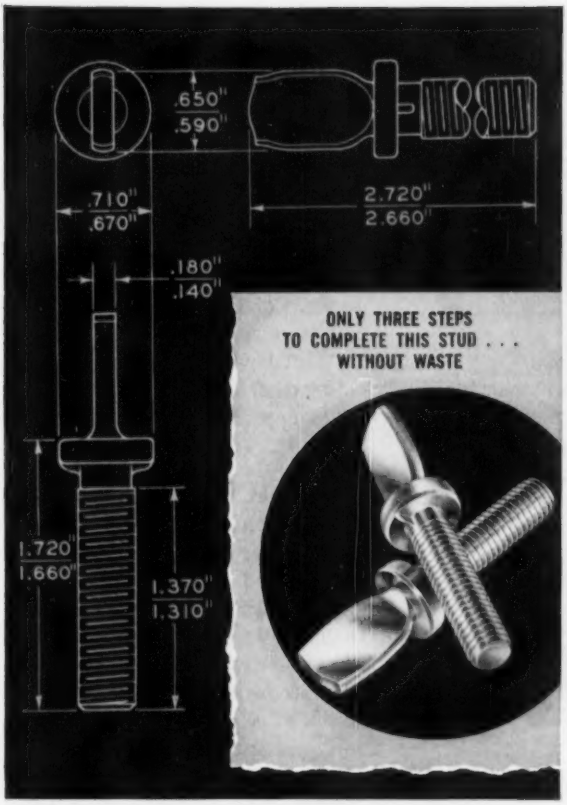
Proof Demanded — Because of the time element, price fluctuations are a major headache in any construction work. Mr. Schuster strives for firm contracts whenever possible, but admits business conditions and trade practices often require escalator clauses. However, the company insists vendors prove their case in price adjustments.

Although both the volume and range of purchases is great, Kellogg finds the vast majority of its piping orders are catalog items. But non-standard piping items, even though they run no more than about 2 pct of total material cost, can be a king-sized headache. A major help here is the company policy of integrating its three major divisions of design, procurement, and construction. Thus purchasing is alerted as soon as designers discover the need for non-standard materials.

Design Help Offered—On pressure vessels, exchangers, and mechanical equipment, the company normally supplies design data to suppliers, except when design is part of the vendor's regular service. Mr. Schuster feels there has been no significant decline in the quality of materials in recent years. But he adds that new and non-standard equipment will often have "bugs" initially.

Since much of its work is for the process industries, Kellogg is a top buyer of pipe, pipe fittings, and valves. And much of its non-standard material is in this area. While the company normally deals directly with mills, Mr. Schuster often finds warehouses are the better source for alloy and stainless steels. Subcontractors are free to use any sound sources they wish, but must normally absorb any costs above mill prices.

H. R. SCHUSTER: First rule for suppliers—deliver on time.



3½ times as many studs
by cold heading

Although this finned collar stud served its function well, it proved too expensive to machine. Progressive made it by cold heading, in just three steps: head, flatten, and thread. Instead of machining it from 1 1/16" bar, we cold headed it from .326" diameter wire—without waste. Over 3½ times as many studs from the same amount of metal.

You can make similar savings—and get naturally stronger fasteners. Write for more case histories in our *"Bank Book of Savings in Cold Heading."*

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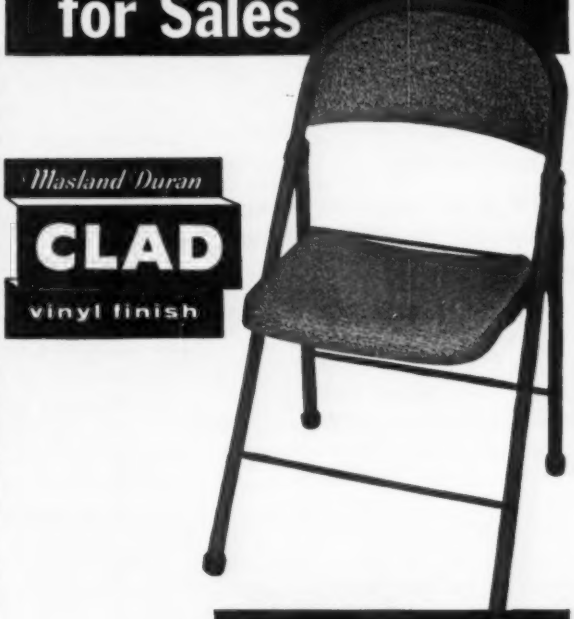
With this NEW FINISH almost any product is "SITTING PRETTY" for Sales



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THE MASLAND DURALEATHER CO., Dept. IA
Amber and Willard Sts., Philadelphia 34, Pa.

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NAME_____ **TITLE**_____

COMPANY_____

STREET_____

CITY_____ **ZONE**____ **STATE**_____

Warehouse Prices Are Increased

Distributor prices are following mill prices up.

First changes average about $7 a ton higher on strip, plates, shapes, and bar.

Mill price increases have so far boosted The IRON AGE Composite $4.42 a ton.

■ Warehouse prices are following mill prices upward.

Initial increases—made effective Aug. 11 by Joseph T. Ryerson & Son—averaged about $7 a ton. The products raised included strip, plates, shapes, and carbon and alloy bar.

Here are the new metropolitan prices in dollars per cwt. for these products at Chicago, Milwaukee, and St. Louis. Hot-rolled strip—Chicago, 8.66; Milwaukee, 8.80; St. Louis, 9.04. Plates—Chicago, 9.04; Milwaukee, 9.18; St. Louis, 9.42. Structurals—Chicago, 9.15; Milwaukee, 9.37; St. Louis, 9.63. Hot-rolled bar — Chicago, 9.14; Milwaukee, 9.20; St. Louis, 9.52. Cold finished bar—Chicago, 9.30; Milwaukee, 9.54; St. Louis, 9.93.

Alloy bars were raised as follows: Hot-rolled 4615, as rolled—Chicago, 16.20; Milwaukee, 16.34; St. Louis, 16.58. Hot-rolled 4140, annealed — Chicago, 15.20; Milwaukee, 15.34; St. Louis, 15.38. Cold drawn 4615, as rolled— Chicago, 19.70; Milwaukee, 19.84; St. Louis, 20.08. Cold drawn 4140, annealed — Chicago, 18.95; Milwaukee, 19.09; St. Louis, 19.33.

IRON AGE Composite Up — Price increases in plates and shapes advanced The IRON AGE Finished Steel Composite Price above last week's level to 6.188 cents per lb. Total increase in the Composite since the price changes began is now $4.42 a ton. One product included in the Composite—rails—has, as yet, not been increased in price.

Other recent price changes:

Stainless Plate: U. S. Steel in a surprise move last week cut its price on stainless plate an average of 6 pct. Mill base prices declined 5¢ a lb or $100 a ton. (New prices appear on p. 138.)

According to U. S. Steel, the action was taken "in the light of present competitive market conditions" for stainless plate. Other producers, while not announcing similar reductions, stated they would remain competitive with U. S. Steel.

The outlook for changes in other stainless products is still a question mark. Stainless plate is a highly competitive product, one producer points out, and the USS move doesn't eliminate the possibility of price increases in other stainless products.

The Corporation also discontinued the jobber discount and direct shipping allowance on stainless plate.

Kaiser Steel Increases: Kaiser Steel Corp., raised prices of billets, blooms, and slabs, bar, re-bar, plates, standard shapes, wide flange beams, and pipe. Most of the increases were similar to those announced previously by other producers. Continuous weld pipe, however, was advanced only $5 a ton contrasted with the $6 increase of most other mills. (New Kaiser prices appear on pp. 130 through 133.

Merchant Wire: American Steel & Wire Div. of U. S. Steel, effective Aug. 5, increased its price on annealed merchant wire $7 a ton. New price at its Cleveland, Donora, Pa., Duluth, Minn., Joliet, Ill., Rankin, Pa., and Fairfield, Ala., producing points is 9.00 cents per lb. Price at Worcester, Mass., is 9.30 cents per lb.

Tool Steel: Crucible Steel Co., Pittsburgh, announced new base prices, effective Aug. 6, for the firm's high speed and tool steel.

With the price increases (see p. 136) high speed steel is now 4½ cents per lb higher, alloy tool steel, 40¢ base and higher, has advanced 3 cents per lb, and low alloy and water hardening tool steels under 40¢ base are up 2½ cents per lb. Carpenter Steel Co., Reading, Pa., made similar price increases.

Wrought Iron—A. M. Byers Co., Pittsburgh, raised their 4-D wrought iron products on Aug. 6 by 3 pct. New prices include wrought iron plates at 13.55 cents per lb and wrought iron bars at 14.90 cents per lb.

Sheet and Strip—Mills report a steady, broad-based climb in sheet orders. The orders are from various steel users, with, as yet, no heavy support from **Detroit** automakers.

Great Lakes Steel Corp. has dropped its cold rolled and alloy strip line.

PURCHASING AGENT'S CHECKLIST

Worst of the metalworking recession is over, but slow recovery is expected. **P. 37**

How U. S. Steel planned its ten-year drive to raise efficiency and boost profits. **P. 40**

Tips on how to buy numerically controlled tools. **P. 61**

COMPARISON OF PRICES

(Effective Aug. 12, 1958)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in **Heavy Type**; declines appear in *Italics*.

	Aug. 12 1958	Aug. 5 1958	July 15 1958	Aug. 13 1957
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	5.10¢	5.10¢	4.925¢	4.925¢
Cold-rolled sheets	6.275	6.275	6.05	6.05
Galvanized sheets (10 ga.)	6.875	6.875	6.60	6.60
Hot-rolled strip	5.10	5.10	4.925	4.925
Cold-rolled strip	7.425	7.425	7.17	7.17
Plate	**5.32**	5.12	5.12	5.12
Plates, wrought iron	13.55	13.15	13.15	13.15
Stainl's C-R strip (No. 302)	52.00	52.00	52.00	52.00
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) coke	$10.30	$10.30	$10.30	$10.30
Tin plates, electro (0.50 lb.)	9.00	9.00	9.00	9.00
Special coated mfg. ternes	9.55	9.55	9.55	9.55
Bars and Shapes: (per pound)				
Merchant bar	5.675¢	5.675¢	5.425¢	5.425¢
Cold finished bar	7.65	7.65	7.30	7.30
Alloy bars	6.725	6.725	6.475	6.475
Structural shapes	5.50	5.275	5.275	5.275
Stainless bars (No.302)	45.00	45.00	45.00	45.00
Wrought iron bars	14.90	14.45	14.45	14.45
Wire: (per pound)				
Bright wire	8.00¢	8.00¢	7.65¢	7.65¢
Rails: (per 100 lb.)				
Heavy rails	$5.525	$5.525	$5.525	$5.525
Light rails	6.50	6.50	6.50	6.50
Semifinished Steel: (per net ton)				
Rerolling billets	$80.00	$80.00	$77.50	$77.50
Slabs, rerolling	80.00	80.00	77.50	77.50
Forging billets	99.50	99.50	96.00	96.00
Alloy blooms, billets, slabs	119.00	119.00	114.00	114.00
Wire Rods and Skelp: (per pound)				
Wire rods	6.40¢	6.40¢	6.15¢	6.15¢
Skelp	5.05	5.05	4.875	4.875
Finished Steel Composite: (per pound)				
Base price	6.188¢	6.138¢	5.967¢	5.967¢

	Aug. 12 1958	Aug. 5 1958	July 15 1958	Aug. 13 1957
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$70.97	$70.97	$70.97	$70.38
Foundry, Valley	66.50	66.50	66.50	66.50
Foundry, Southern Cin'ti	73.87	73.87	73.87	70.67
Foundry, Birmingham	62.50	62.50	62.50	62.50
Foundry, Chicago	66.50	66.50	66.50	66.50
Basic, del'd Philadelphia	70.47	70.47	70.47	69.88
Basic, Valley furnace	66.00	66.00	66.00	66.00
Malleable, Chicago	66.50	66.50	66.50	66.50
Malleable, Valley	66.50	66.50	66.50	67.00
Ferromanganese 74-76 pct Mn, cents per lb‡	12.25	12.25	12.25	12.75
Pig Iron Composite: (per gross ton)				
Pig iron	$66.49	$66.49	$66.49	$66.40
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$44.50	$44.50	$39.50	$55.50
No. 1 steel, Phila. area	37.50	37.50	34.50	51.50
No. 1 steel, Chicago	*43.50*	44.50	38.50	53.50
No. 1 bundles, Detroit	37.50	37.50	31.50	50.50
Low phos., Youngstown	*46.00*	46.50	39.50	58.50
No. 1 mach'y cast, Pittsburgh	51.50	51.50	48.50	58.50
No. 1 mach'y cast, Phila.	49.50	49.50	47.50	56.50
No. 1 mach'y cast, Chicago	52.50	52.50	47.50	53.50
Steel Scrap Composite: (per gross ton)				
No. 1 hvy. melting scrap	*$41.83*	$42.17	$37.50	$53.50
No. 2 bundles	29.83	29.83	26.83	43.00
Coke Connellsville: (per net ton at oven)				
Furnace coke, prompt	$15.38	$15.38	$15.38	$15.38
Foundry coke, prompt	$17.50-$19	$17.50-$19	$17.50-$19	$17.50-$19
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	26.50	26.50	25-26.50	28.50
Copper, Lake, Conn.	26.50	25.00	25.00	28.50
Tin, Straits, N. Y.	*95.25*†	95.75*	94.00	94.375
Zinc, East St. Louis	10.00	10.00	10.00	10.00
Lead, St. Louis	10.80	10.80	10.80	13.80
Aluminum, virgin ingot	26.80	26.80	26.10	28.10
Nickel, electrolytic	74.00	74.00	74.00	74.00
Magnesium, ingot	36.00	36.00	36.00	36.00
Antimony, Laredo, Tex.	29.50	29.50	29.50	33.00

† Tentative. ‡ Average. * Revised.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

INDEX TO PRICE PAGES

Prices Hit Peak, Level Off

BULLETIN

Steelmaking grades in Chicago fell $1 per ton this week, dropping The IRON AGE Composite price to $41.83.

■ The scrap market apparently has reached its summer peak after weeks of erratic price spurts.

Material from outside districts began pouring into Pittsburgh and Midwest steelmaking centers in the past two weeks when prices in these areas rose to a point where they could cover long haul freight costs. It forced local dealers to unload material they had been holding for higher prices.

With the mills in those two areas getting their full of scrap for the time being, the price balance may swing back the other way if there is no new heavy buying.

Higher prices loosened the supply of scrap in most districts and dealers are jumping at the chance to build up inventories of good material.

The IRON AGE No. 1 heavy melting Composite Price is unchanged at $42.17.

Announcement by Great Britain that it will "decontrol" scrap for overseas shipment beginning Nov. 1 caused little, if any, concern among U. S. exporters. The general feeling is that the amount of scrap leaving British ports will be negligible.

British scrap prices and shipments have been under government control since the outbreak of World War II.

Pittsburgh — Prices of dealer openhearth grades are unchanged as a buying lull finds the market in a state of uneasy balance. Prices of No. 1 factory bundles, low phos, and railroad specialties are off $1 as a late railroad list showed easing in demand for the best grades. Dealer openhearth market leveled off when high prices began pulling scrap into the district from the East and other long haul points.

Chicago — Prices continued to hang at the point reached two weeks ago, despite attempts by brokers to buy lower. Strong out-of-the-area scrap movement and increased mill buying in the fringe areas bolstered dealer resistance to lower prices. Stainless and cast continue strong. New busheling was incorrectly quoted at $41-$42 last week. Correct price was $44-$45.

Philadelphia—This market continues strong. Most prices are unchanged. Some No. 2 bundles were sold to an out-of-the-area consumer for $25. Clean cast chemical borings, which were inactive for several months, went for $31 in a new sale—$6 above the previous price. Local mills are expected to come into the market again at the end of the month.

New York—Turnings prices are up $1 here on the basis of a purchase by a mill in an adjacent market. Export and small local orders are holding primary steelmaking grades at a top of $29. Unstripped motor blocks are up $2, reflecting last week's rise in cast. Stainless 18-8 turnings and 430 solids each have risen $5.

Detroit—There are no quotes on No. 1 dealer scrap. However, there is some movement of scrap from the docks which may be freezing dealer scrap out of the present limited market. Stainless prices moved up $5 in response to fair demand.

Cleveland — The market has cooled off but shipments are heavy on old orders. Prime dealer tonnage is hard to find. Valley mills have started more furnaces. Industrial bundle shipment is heavy locally and some are coming in from Detroit. A fringe area mill bought electric furnace scrap at $46.50, confirming price levels.

St. Louis — District steel mills increased their buying prices for scrap from $2 to $4 a ton. The increases were a direct result of advances by an outside mill, which draws much of its material from this area. More scrap is moving in the district.

Birmingham—With many dealers continuing to resist present prices, brokers report they are having trouble filling orders for openhearth scrap. There was some small buying of cast at unchanged prices.

Cincinnati—The market softened as area mills filled their orders and withdrew from the market. Brokers are offering less and finding few takers. Some tonnage has been moving up river to Pittsburgh area because of good demand there and favorable price spread.

Buffalo — Market activity has ceased here after a flurry of buying last week. Dealers report there is little scrap coming into their yards. Prices are unchanged.

Boston — The market is losing some of its steam domestically. But the improved export market is strong enough to support current prices of openhearth grades. Blast furnace grades are stronger.

West Coast—The market is out on its feet. Mills are taking in very little scrap and they are exceptionally strict on inspection.

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buy
Scott Wipers
for
many
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Mr. Donald Donofrio, Machine Shop Head Foreman of Acme Steel, likes Scott Wipers, considers this specially processed Perf-embossed® surface ideal for wiping radial drill presses, lathes, milling machines, grinders and for general maintenance and clean-up wiping. Scott Wipers are soft 2-ply paper, possessing wiping strength and wet strength.

Scott Wipers keep plant cleaner, eliminate skin complaints at Acme Steel

Acme Steel Company, Chicago, one of the largest producers of steel strapping and strapping tools in the nation, uses Scott Wipers in tool crib, machine shop, tool and die department, welding room and millwright shop. Employees had complained about the "harshness" of cloth wipers laundered with heavy soaps and detergents. Scott Wipers stopped these complaints—because *they're* used once, disposed of in handy containers. Scott Wipers have eliminated collecting, counting, bundling and laundry charges, and according to management:
"The plant is definitely kept cleaner now!"

SCOTT PAPER

An interesting film report by John Cameron Swayze on "Paper in Industry" has just been released. Takes just 15 minutes—your Scott distributor can arrange a showing. He's in the Yellow Pages under "Paper Towels." Or write: Scott Paper Company, Dept. IA-88, Chester, Pennsylvania

See "Father Knows Best" on NBC-TV.

SCRAP PRICES *(Effective Aug. 12, 1958)*

Pittsburgh

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 dealer bundles	44.00 to 45.00
No. 1 factory bundles	50.00 to 51.00
No. 2 bundles	33.00 to 34.00
No. 1 busheling	44.00 to 45.00
Machine shop turn.	20.00 to 21.00
Mixed bor. and ms. turn.	20.00 to 21.00
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 25.00
Low phos. punch'gs plate	49.00 to 50.00
Heavy turnings	36.00 to 37.00
No. 1 RR hvy. melting	48.00 to 49.00
Scrap rails, random lgth.	54.00 to 55.00
Rails 2 ft and under	57.00 to 58.00
RR steel wheels	52.00 to 53.00
RR spring steel	52.00 to 53.00
RR couplers and knuckles	52.00 to 53.00
No. 1 machinery cast.	51.00 to 52.00
Cupola cast.	43.00 to 44.00
Heavy breakable cast.	41.00 to 42.00
Stainless	
18-8 bundles and solids	195.00 to 200.00
18-8 turnings	120.00
430 bundles and solids	110.00 to 115.00
410 turnings	50.00 to 60.00

Chicago

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	38.00 to 39.00
No. 1 dealer bundles	43.00 to 44.00
No. 1 factory bundles	51.00 to 52.00
No. 2 bundles	31.00 to 32.00
No. 1 busheling	43.00 to 44.00
Machine shop turn.	24.00 to 25.00
Mixed bor. and turn.	25.00 to 26.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	25.00 to 26.00
Low phos. forge crops	54.00 to 55.00
Low phos. punch'gs plate	50.00 to 51.00
Low phos. 3 ft and under	48.00 to 49.00
No. 1 RR hvy. melting	49.00 to 50.00
Scrap rails, random lgth.	54.00 to 55.00
Rerolling rails	64.00 to 65.00
Rails 2 ft and under	59.00 to 60.00
Locomotive tires cut	54.00 to 55.00
Cut bolsters & side frames	51.00 to 52.00
Angles and splice bars	56.00 to 57.00
RR steel car axles	69.00 to 70.00
RR couplers and knuckles	52.00 to 53.00
No. 1 machinery cast.	52.00 to 53.00
Cupola cast.	46.00 to 47.00
Heavy breakable cast.	41.00 to 42.00
Cast iron brake shoes	42.00 to 43.00
Cast iron wheels	40.00 to 41.00
Malleable	56.00 to 57.00
Stove plate	44.00 to 45.00
Steel car wheels	51.00 to 52.00
Stainless	
18-8 bundles and solids	195.00 to 200.00
18-8 turnings	110.00 to 115.00
430 bundles and solids	105.00 to 110.00
430 turnings	65.00 to 70.00

Philadelphia Area

No. 1 hvy. melting	$37.00 to $38.00
No. 2 hvy. melting	33.00 to 34.00
No. 1 dealer bundles	37.00 to 38.00
No. 2 bundles	24.00 to 25.00
No. 1 busheling	37.00 to 38.00
Machine shop turn.	19.00 to 20.00
Mixed bor. short turn.	18.00 to 19.00
Cast iron borings	19.00 to 20.00
Shoveling turnings	22.00 to 23.00
Clean cast. chem. borings	24.00 to 25.00
Low phos. 5 ft and under	40.00 to 41.00
Low phos. 2 ft and under	42.00 to 43.00
Low phos. punch'gs	42.00 to 43.00
Elec. furnace bundles	38.00 to 39.00
Heavy turnings	32.00 to 33.00
RR steel wheels	44.50 to 45.50
RR spring steel	44.50 to 45.50
Rails 18 in. and under	57.00 to 58.00
Cupola cast.	39.00 to 40.00
Heavy breakable cast.	41.00 to 42.00
Cast iron car wheels	44.00 to 45.00
Malleable	56.00 to 57.00
Unstripped motor blocks	30.00 to 31.00
No. 1 machinery cast.	49.00 to 50.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$38.50 to $39.50
No. 2 hvy. melting	33.50 to 34.50
No. 1 dealer bundles	38.50 to 39.50
No. 2 bundles	26.00 to 27.00
Machine shop turn.	18.00 to 19.00
Mixed bor. and turn.	17.00 to 18.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	17.00 to 18.00
Low phos. 18 in. and under	43.00 to 44.00
Rails, random length	44.00 to 45.00
Rails, 18 in. and under	54.00 to 55.00
No. 1 cupola cast.	42.00 to 43.00
Hvy. breakable cast.	34.00 to 35.00
Drop broken cast.	46.00 to 47.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Cleveland

No. 1 hvy. melting	$40.50 to $41.50
No. 2 hvy. melting	32.50 to 33.50
No. 1 dealer bundles	40.50 to 41.50
No. 1 factory bundles	45.00 to 46.00
No. 2 bundles	27.50 to 28.50
No. 1 busheling	40.50 to 41.50
Machine shop turn.	17.00 to 18.00
Mixed bor. and turn.	21.00 to 22.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	21.00 to 22.00
Cut structural & plates, 2 ft & under	48.00 to 49.00
Drop forge flashings	40.50 to 41.50
Low phos. punch'gs plate	41.50 to 42.50
Foundry steel, 2 ft & under	41.00 to 42.00
No. 1 RR hvy. melting	47.00 to 48.00
Rails 2 ft and under	56.00 to 57.00
Rails 18 in. and under	57.00 to 58.00
Railroad grate bars	18.00 to 19.00
Steel axle turnings	24.00 to 25.00
Railroad cast.	49.00 to 50.00
No. 1 machinery cast.	48.00 to 49.00
Stove plate	44.00 to 45.00
Malleable	61.00 to 62.00
Stainless	
18-8 bundles	195.00 to 200.00
18-8 turnings	105.00 to 110.00
430 bundles	100.00 to 105.00
430 turnings	40.00 to 45.00

Buffalo

No. 1 hvy. melting	$37.00 to $38.00
No. 2 hvy. melting	31.00 to 32.00
No. 1 busheling	36.00 to 37.00
No. 1 dealer bundles	37.00 to 38.00
No. 2 bundles	29.00 to 30.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and turn.	18.00 to 19.00
Shoveling turnings	22.00 to 23.00
Cast iron borings	16.00 to 17.00
Low phos. plate	40.00 to 41.00
Structurals and plate, 2 ft and under	45.00 to 46.00
Scrap rails, random lgth.	47.00 to 48.00
Rails 2 ft and under	59.00 to 60.00
RR steel wheels	44.00 to 45.00
RR spring steel	44.00 to 45.00
RR couplers and knuckles	44.00 to 45.00
No. 1 machinery cast.	43.00 to 44.00
No. 1 cupola cast.	39.00 to 40.00

St. Louis

No. 1 hvy. melting	$39.00 to $40.00
No. 2 hvy. melting	37.00 to 38.00
No. 1 dealer bundles	41.00 to 42.00
No. 2 bundles	30.00 to 31.00
Machine shop turn.	17.00 to 18.00
Cast iron borings	19.00 to 20.00
Shoveling turnings	19.00 to 20.00
No. 1 RR hvy. melting	48.00 to 49.00
Rails, random lengths	48.00 to 49.00
Rails, 18 in. and under	54.00 to 55.00
Angles and splice bars	46.00 to 47.00
Std. steel car axles	65.00 to 66.00
RR specialties	47.00 to 48.00
Cupola cast.	48.00 to 49.00
Heavy breakable cast.	38.00 to 39.00
Cast iron brake shoes	38.00 to 39.00
Stove plate	44.00 to 45.00
Cast iron car wheels	40.00 to 41.00
Rerolling rails	61.00 to 62.00
Unstripped motor blocks	39.00 to 40.00

Birmingham

No. 1 hvy. melting	$35.00 to $36.00
No. 2 hvy. melting	30.00 to 31.00
No. 1 dealer bundles	35.00 to 36.00
No. 2 bundles	22.00 to 23.00
No. 1 busheling	35.00 to 36.00
Machine shop turn.	21.00 to 22.00
Shoveling turnings	22.00 to 23.00
Cast iron borings	12.00 to 13.00
Electric furnace bundles	39.00 to 40.00
Elec. furnace, 3 ft & under	37.00 to 38.00
Bar crops and plate	44.00 to 45.00
Structural and plate, 2 ft.	44.00 to 45.00
No. 1 RR hvy. melting	39.00 to 40.00
Scrap rails, random lgth.	45.00 to 46.00
Rails, 18 in. and under	49.00 to 50.00
Angles & splice bars	46.00 to 47.00
Rerolling rails	59.00 to 60.00
No. 1 cupola cast.	53.00 to 54.00
Stove plate	52.00 to 53.00
Charging box cast.	22.00 to 23.00
Cast iron car wheels	39.00 to 40.00
Unstripped motor blocks	41.00 to 42.00

Youngstown

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 dealer bundles	44.00 to 45.00
No. 2 bundles	30.00 to 31.00
Machine shop turn.	20.50 to 21.50
Shoveling turnings	24.50 to 25.50
Cast iron borings	24.50 to 25.50
Low phos. plate	45.50 to 46.50

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$28.00 to $29.00
No. 2 hvy. melting	24.00 to 25.00
No. 2 dealer bundles	17.00 to 18.00
Machine shop turn.	8.00 to 9.00
Mixed bor. and turn.	11.00 to 12.00
Shoveling turnings	11.00 to 12.00
Clean cast. chem. borings	22.00 to 23.00
No. 1 machinery cast.	36.00 to 37.00
Mixed yard cast.	34.00 to 35.00
Charging box cast.	33.00 to 34.00
Heavy breakable cast.	33.00 to 34.00
Unstripped motor blocks	24.00 to 25.00
Stainless	
18-8 prepared solids	165.00 to 170.00
18-8 turnings	70.00 to 75.00
430 prepared solids	60.00 to 65.00
430 turnings	20.00 to 25.00

Detroit

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$34.00 to $35.00
No. 2 hvy. melting	25.50 to 26.50
No. 1 dealer bundles	37.00 to 38.00
No. 2 bundles	22.00 to 23.00
No. 1 busheling	34.00 to 35.00
Drop forge flashings	33.00 to 34.00
Machine shop turn.	13.00 to 14.00
Mixed bor. and turn.	14.00 to 15.00
Shoveling turnings	15.00 to 16.00
Cast iron borings	15.00 to 16.00
Low phos. punch'gs plate	34.00 to 35.00
No. 1 cupola cast.	39.00 to 40.00
Heavy breakable cast.	30.00 to 31.00
Mixed cupola cast.	40.00 to 41.00
Automotive cast.	43.00 to 44.00
Stainless	
18-8 bundles and solids	185.00 to 190.00
18-8 turnings	90.00 to 95.00
430 bundles and solids	95.00 to 100.00
410 turnings	20.00 to 25.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$24.00 to $25.00
No. 2 hvy. melting	20.00 to 21.00
No. 1 dealer bundles	24.00 to 25.00
No. 2 bundles	17.00 to 18.00
No. 1 busheling	24.00 to 25.00
Machine shop turn.	7.00 to 8.00
Mixed bor. and short turn.	8.00 to 9.00
Shoveling turnings	9.00 to 10.00
Clean cast. chem. borings	16.00 to 17.00
No. 1 machinery cast.	31.00 to 32.00
Mixed cupola cast.	29.00 to 30.00
Heavy breakable cast.	28.00 to 29.00
Stove plate	28.00 to 29.00
Unstripped motor blocks	22.00 to 23.00

San Francisco

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	28.00
No. 2 bundles	22.00
Machine shop turn.	15.00
Cast iron borings	15.00
No. 1 RR hvy. melting	32.00
No. 1 cupola cast.	45.00

Los Angeles

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	$27.00 to 28.00
No. 2 bundles	17.00
Machine shop turn.	11.00
Shoveling turnings	13.00
Cast iron borings	13.00
Elec. furn 1 ft and under (foundry)	43.00
No. 1 RR hvy. melting	33.00
No. 1 cupola cast.	39.00 to 41.00

Seattle

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	28.00
No. 2 bundles	22.00
No. 1 cupola cast.	36.00
Mixed yard cast.	36.00

Hamilton, Ont.

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	26.00
No. 1 dealer bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Busheling	20.00
Bush., new fact., prep'd	30.00
Bush., new fact., unprep'd	24.00
Machine shop turn.	15.00
Short steel turn.	19.00
Mixed bor. and turn.	15.00
Rails, rerolling	39.00
Cast scrap	$45.00 to 50.00

Alcoa Cuts Soft Extrusion Prices

New price book lists extrusions at 2¢ to 11¢ less, despite hike in primary metal.

Trade says extrusions will hold current levels until demand rockets.

▪ Aluminum Co. of America is not making equivalent advances in all its mill products to match the 7/10¢ per lb hike in the price of primary aluminum.

Sharpest deviation was the soft, solid extrusion prices, which were cut. The most popular alloy extrusions, 6063-T5, have been officially reduced 2¢ to 11¢ per lb, depending on the factor and shape.

Alcoa made no change in corrugated roofing sheet.

The prices of most other mill products went up as expected. Standard flat sheet and plate price boosts range from about .7¢ per lb to 1.7¢ per lb. Screw machine stock is up anywhere from .7¢ to 1¢ per lb, depending on size.

Not New—Many traders say the new published prices for extrusions reflect actual market conditions. They say all sellers to U. S. markets have been around these levels, or lower, since April.

Alcoa says the extrusion price cuts were made to meet competition.

When the primary price hike and "equivalent advances in mill products" were announced at the beginning of the month, observers said there was enough aluminum orders on producers' books for delivery at the old prices, to hold the price line for at least 60 days.

Hold These Levels—Now, they interpret Alcoa's more realistic listing of extrusion prices as an indication that this market is not likely to move up at all, until demand at least equals supply.

Aluminium Ltd., Canadian producer selling ingot in the U. S., says it will ship at the former price on all orders on its books before the increase, for 60 days, not 90 days as had been reported.

Aluminum Briefs

Aluminium Ltd.'s second quarter earnings were off slightly from the first quarter, $5,120,000 from $5,331,000. But tonnage sales were up, 150,000 tons from 128,000 tons, and were only 6000 tons below the second quarter 1957.

African Bauxite — Olin Mathieson will get its own bauxite from French West Africa.

It now owns 53½ pct of FRIA Compagnie Internationale pour la Production de l'Alumine, a company set up to mine the ore and make alumina near the port of Conakry. Other owners are Pechiney and Ugine, French producers, 26½ pct; AIAG, Swiss producer, 10 pct; and British Aluminium Co., 10 pct.

The owners will have the right to purchase bauxite in proportion to their ownership.

Cost of the project is estimated at $135 million. Initial capacity of the alumina plant, to be operated by Pechiney, will be 480,000 tons. But it is designed so that output can be expanded to 1.2 million tons. O-M says proven ore reserves in the area are 200 million tons, with unproven discoveries figured at about 1.5 billion tons in French Guinea.

Trade observers say the move was no surprise since (1) most of the high grade bauxite in this hemisphere is in the Caribbean, and sewed up by the big 3 domestic producers and Aluminium Ltd., and (2) Olin's entire approach to aluminum has been original. The company gets the primary metal it sells and mills from Ormet, which it owns ⅔, in partnership with Revere Copper and Brass, Inc.

Lead and Zinc

Things are starting to look up. An indication of how much the market has improved over-all, is that interest in the Domestic Minerals Stabilization Bill, and the subsidies it calls for, is waning.

Odds on the passage of the modified Seaton Plan vary almost from day to day. After moving briskly through the Senate, and the House interior Committee, it is now stuck in the House Rules Committee.

Observers say if it reaches the House floor, it stands a good chance of passing. But, to date the Rules Committee hasn't put it on the calendar because of the number of bills on which it considers House action more important.

This means, say observers, the big "if" is how long the Congress sits. If the lawmakers adjourn this weekend, the bill is given no chance.

Confusing Figures — Statistics from the American Zinc Institute on July business do little to clear the market picture. Production was at the lowest level this year, 65,119 tons. Total shipments were second only to January at 60,187 tons. But stocks at the smelters at the end of July were up to 257,911 tons from 252,979 tons at the end of June.

Domestic shipments, considered a sign of the rate at which fabricators are coming out of the recession, hit a high for the year. And July is the traditional vacation month.

Total of 60,132 tons was shipped

to U. S. users, compared to 54,487 tons in June, and 58,211 tons in January, the previous top.

Copper

The optimism of the aluminum industry is starting to rub off on copper producers.

Major producers admit that sales in the last month or two have been up. But they caution the pickup cannot be called a real upturn. They fear that at least some of the improvement, in several specific cases, was a hedge during the period of the split price.

Nevertheless, all producers who took out some mine capacity are thinking about, or have already put some of it back. In the copper industry it takes from 30 to 45 days for production changes at the mine level to show up as primary metal on the market. So any producer move is, in effect, a bet on improved business in September and October.

Several copper executives admit they are facing Detroit with their fingers crossed.

Tin prices for the week: Aug. 6—95.625; Aug. 7—95.375; Aug. 8—95.375; Aug. 11—95.25; Aug. 12—95.25.*

* Estimate.

Primary Prices

(cents per lb)	current price	last price	date of change
Aluminum pig	24.70	24.00	8/1/58
Aluminum ingot	26.80	26.10	8/1/58
Copper (E)	26.50	25-26.50	7/17/58
Copper (CS)	26.50	27.00	8/8/58
Copper (L)	26.50	25.00	7/17/58
Lead, St. L.	10.80	11.30	7/1/58
Lead, N. Y.	11.00	11.50	7/1/58
Magnesium ingot	36.00	34.00	8/13/58
Magnesium pig	35.25	33.75	8/13/58
Nickel	74.00	64.50	12/6/56
Titanium sponge	185-205	200-250	4/1/58
Zinc, E. St. L.	10.00	10.50	7/1/57
Zinc, N. Y.	10.50	11.00	7/1/57

ALUMINUM: 99% ingot frt allwd. COPPER: (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. LEAD: common grade. MAGNESIUM: 99.8% pig Velasco, Tex. NICKEL: Port Colbourne, Canada. ZINC: prime western. TIN: see above; other primary prices, pg. 128.

NONFERROUS PRICES

MILL PRODUCTS

(Cents per lb unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. ship. pt., frt. allowed)

Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.032	.081	.136-.249	.250-3
1100, 3003	45.7	43.8	42.8	43.3
5052	53.1	48.4	46.9	46.0
6061-0	50.1	45.7	43.9	44.9

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
6-8	42.7-44.2	51.1-54.8
12-14	42.7-44.2	52.0-56.5
24-26	43.2-44.7	62.5-67.5
36-38	46.7-49.2	86.9-90.5

Screw Machine Stock—2011-T-3

Size"	¼	⅜-½	⅝-1	1¼-1½
Price	62.0	61.2	59.7	57.3

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144
.019 gage	$1.411	$1.884	$2.353	$2.823
.024 gage	1.763	2.349	2.937	3.524

MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

Sheet and Plate

Type→ Gage→	.250 3.00	.250-2.00	.188	.081	.032
AZ31B Stand. Grade	.....	67.9	69.0	77.9	108.1
AZ31B Spec.	.....	93.3	95.7	108.7	171.3
Tread Plate	.....	70.6	71.7	.....	.....
Tooling Plate	73.0	.....	.....	.....	.....

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade (AZ31C)	69.6	70.7	75.6	89.2
Spec. Grade (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting) ..... 37.25 (delivered)
AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Chot, blocks	...	87	...

COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	49.63	.....	46.86	49.83
Brass, 70/30	43.57	44.11	43.51	46.48
Brass, Low	46.03	46.57	45.97	48.84
Brass, R L	46.89	47.43	46.83	49.70
Brass, Naval	47.63	.....	42.14	51.24
Munts Metal	45.95	.....	41.76	.....
Comm. Bs.	48.30	48.84	48.24	50.86
Mang. Bs.	51.57	.....	45.67	.....
Phos. Bs. 5%	68.59	.....	69.09	.....

Free Cutting Brass Rod 29.28

TITANIUM

(Base prices f.o.b. mill)

Sheet and strip, commercially pure, $8.50-$10.10; alloy, $15.95; Plate, HR, commercially pure, $6.00-$6.75; alloy, $8.75-$9.50. Wire, rolled and/or drawn, commercially pure, $6.50-$7.00; alloy, $10.00-$11.50; Bar, HR or forged, commercially pure, $5.25-$5.50; alloy, $5.25-$6.35; billets, HR, commercially pure, $4.10-$4.35; alloy, $4.10-$4.20.

PRIMARY METAL

(Cents per lb unless otherwise noted)

Antimony, American, Laredo, Tex.. 29.50
Beryllium aluminum 5% Be, Dollar per lb contained Be $74.75
Beryllium copper, per lb conta'd Be. $43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading $71.50
Bismuth, ton lots ..... $ 2.25
Cadmium, del'd ..... $ 1.55
Calcium, 99.9% small lots ..... $ 4.55
Chromium, 99.8% metallic basis... $ 1.31
Cobalt, 97-99% (per lb).... $2.00 to $2.07
Germanium, per gm, f.o.b. Miami, Okla., refined ..... 39.50 to 50.00
Gold, U. S. Treas., per troy oz. $35.00
Indium, 99.9%, dollars per troy oz.. $ 2.25
Iridium, dollars per troy oz. ... $70 to $80
Lithium, 98% ..... $11.00 to $14.00
Magnesium, sticks, 100 to 500 lb. .. 59.00
Mercury, dollars per 76-lb flask, f.o.b. New York ..... $239 to $243
Nickel oxide sinter at Buffalo, N. Y., or other U. S. points of entry, contained nickel 69.60
Palladium, dollars per troy oz... $17 to $19
Platinum, dollars per troy oz.. $59 to $65
Rhodium ..... $120.00 to $125.00
Silver ingots (¢ per troy oz.) 88.625
Thorium, per kg. $43.00
Vanadium ..... $ 3.45
Zirconium sponge ..... $ 5.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
- No. 115 ..... 27.00
- No. 120 ..... 26.25
- No. 123 ..... 25.75

80-10-10 ingot
- No. 305 ..... 31.25
- No. 315 ..... 29.25

88-10-2 ingot
- No. 210 ..... 38.25
- No. 215 ..... 34.00
- No. 245 ..... 30.75

Yellow ingot
- No. 405 ..... 22.75

Manganese bronze
- No. 421 ..... 24.50

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
- 0.30 copper max. 24.50-25.00
- 0.60 copper max. 24.25-24.75

Piston alloys (No. 122 type) .. 24.25-25.25
No. 12 alum. (No. 2 grade) ... 21.50-22.00
108 alloy 22.00-22.50
195 alloy 25.00-26.00
13 alloy (0.60 copper max.) ... 24.25-24.75
AXS-679 (1 pct zinc) 21.75-22.25

(Effective Aug. 11, 1958)

Steel deoxidizing aluminum notch bar granulated or shot

Grade 1—95-97½% 22.50-23.50
Grade 2—92-95% 21.25-22.25
Grade 3—90-92% 20.25-21.25
Grade 4—85-90% 17.50-18.50

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	22½	21⅝
Yellow brass	17	15¼
Red brass	18¾	19
Comm. bronze	20⅝	19⅞
Mang. bronze	15⅞	14⅞
Yellow brass rod ends	16¾	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

- No. 1 copper wire 22¾
- No. 2 copper wire 21¼
- Light copper 19
- *Refinery brass 20¾
- Copper bearing material 19

*Dry copper content.

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

- No. 1 copper wire 22¾
- No. 2 copper wire 21⅛
- Light copper 19
- No. 1 composition 19⅛
- No. 1 comp. turnings 18⅜
- Hvy. yellow brass solids 14⅛
- Brass pipe 15⅛
- Radiators 15¾

Aluminum

- Mixed old cast. ..... 12 —12½
- Mixed new clips ..... 15 —16
- Mixed turnings, dry ..... 13 —14

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

- No. 1 copper wire ..... 19¾—20⅛
- No. 2 copper wire ..... 17¾—18⅛
- Light copper ..... 15¾—16⅛
- Auto radiators (unsweated). 11¾—12⅛
- No. 1 composition ..... 15⅝—16⅛
- No. 1 composition turnings.. 14¾—15⅛
- Cocks and faucets ..... 13 —13⅛
- Clean heavy yellow brass ... 11 —11½
- Brass pipe ..... 13 —13½
- New soft brass clippings .... 13½—14
- No. 1 brass rod turnings .... 11 —11½

Aluminum

- Alum. pistons and struts .... 5 — 5½
- Aluminum crankcases ..... 9 — 9½
- 1100 (2S) aluminum clippings 12½—13
- Old sheet and utensils ..... 9 — 9½
- Borings and turnings ..... 6 — 6½
- Industrial castings ..... 9 — 9½
- 2024 (24S) clippings ..... 10½—11

Zinc

- New zinc clippings ..... 4 — 4½
- Old zinc ..... 3 — 3¼
- Zinc routings ..... 1¾— 2
- Old die cast scrap ..... 1½— 1¾

Nickel and Monel

- Pure nickel clippings 42-45
- Clean nickel turnings 37-40
- Nickel anodes 42-45
- Nickel rod ends 42-45
- New Monel clippings 28-29
- Clean Monel turnings 20-23
- Old sheet Monel 25-26
- Nickel silver clippings, mixed 18
- Nickel silver turnings, mixed 15

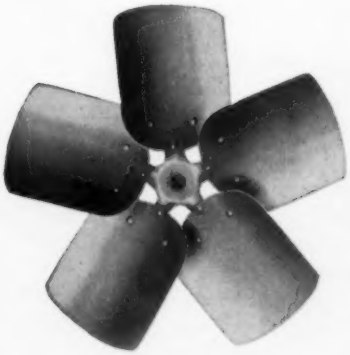
Lead

- Soft scrap lead ..... 6¾— 7
- Battery plates (dry) ..... 2¼— 2½
- Batteries, acid free ..... 1½— 1¾

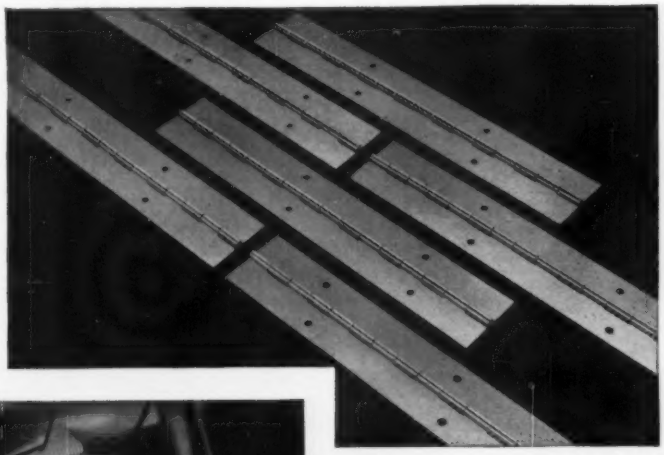
Miscellaneous

- Block tin ..... 75 —76
- No. 1 pewter ..... 59 —60
- Auto babbitt ..... 39 —40
- Mixer common babbitt ..... 9½—10
- Solder joints ..... 13¼—13¾
- Siphon tops 42
- Small foundry type ..... 10½—10¾
- Monotype ..... 10¼—10½
- Lino. and stereotype ..... 9¼— 9½
- Electrotype ..... 8¼— 8½
- Hand picked type shells .... 6¼— 6¾
- Lino. and stereo. dross ..... 2¼— 2½
- Electro dross ..... 1¾— 2

When you buy aluminum for your product...



VENTILATING



BUILDING

AIR CONDITIONING

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Every industry has one member who specializes in customer satisfaction

All Anaconda Aluminum coiled sheet is custom-rolled to your exacting specifications. In order after order, uniformity of temper is maintained by our precise production control. Modern rolling mills with X-ray gauge controls provide you uniform thicknesses and consistent yield per pound. Workability, even on deep draws, is assured by control of grain size. On narrowest widths, high-speed slitters cut exact widths with precision edges.

Our line includes gauges from .006″ to .064″; widths from ⅜″ to 54″; alloys: 1100, 1145, 3003, 3004, 5005, 5050, 5052, 5357. And watch for an expanding line of aluminum wrought mill products.

To take advantage of our modern plant flexibility and custom production policy, call our nearest District Sales Office or contact us direct. Write for the new booklet, "Anaconda Aluminum Coiled Sheet", Dept. A-8, 1430 S. 13th St., Louisville 10, Kentucky.

ANACONDA ALUMINUM

Made by Cochran Foil Corporation
LOUISVILLE, KENTUCKY
A SUBSIDIARY OF THE ANACONDA COMPANY

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PILING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$119.00 *B3*		5.55 *B3*	8.10 *B3*	5.55 *B3*						
	Buffalo, N. Y.	$80.00 *R3, B3*	$99.50 *R3, B3*	$119.00 *R3, B3*	6.50 *B3*	5.55 *B3*	8.10 *B3*	5.55 *B3*	5.10 *B3, R3*	7.425 *S10, R2*	7.575 *B3*			
	Phila., Pa.									7.70 *P15*				
	Harrison, N. J.													15.55 *C11*
	Conshohocken, Pa.		$104.50 *A2*	$126.00 *A2*					5.15 *A2*		7.575 *A2*			
	New Bedford, Mass.									7.875 *R6*				
	Johnstown, Pa.	$80.00 *B3*	$99.50 *B3*	$119.00 *B3*		5.55 *B3*	8.10 *B3*							
	Boston, Mass.									7.975 *T8*				15.90 *T8*
	New Haven, Conn.									7.875 *D1*				
	Baltimore, Md.									7.425 *T8*				
	Phoenixville, Pa.					5.55 *P2*		5.55 *P2*						
	Sparrows Pt., Md.								5.10 *B3*		7.575 *B3*			
	New Britain, Bridgeport, Wallingford, Conn.			$119.00 *N8*						7.575 *W1,S7*				
	Pawtucket, R. I. Worcester, Mass.									7.975 *N7, A5*				15.90 *N7* 15.70 *T8*
MIDDLE WEST	Alton, Ill.								5.30 *L1*					
	Ashland, Ky.								5.10 *A7*					
	Canton-Massillon, Dover, Ohio		$102.00 *R3*	$119.00 *R3, T5*						7.425 *G4*		10.80 *G4*		15.50 *C11*
	Chicago, Ill. Franklin Park, Ill. Evanston, Ill.	$80.00 *U1, R3*	$99.50 *U1, R3,W8*	$119.00 *U1, R3,W8*	6.50 *U1*	5.50 *U1, W8,P15*	8.05 *U1, Y1,W8*	5.50 *U1*	5.10 *W8, N4,A1*	7.525 *A1,T8 M8*			8.40 *W8, S9,I3*	15.55 *A1, S9,G4*
	Cleveland, Ohio									7.425 *A5,J3*		10.75 *A5*	8.40 *J3*	
	Detroit, Mich.			$119.00 *R5*					5.10 *G3, M2*	7.425 *M2, D1,D2,P11*	7.575 *G3*	10.80 *D2*		
	Anderson, Ind.									7.425 *G4*				
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	$80.00 *U1*	$99.50 *U1*	$119.00 *U1, Y1*		5.50 *U1, I3*	8.05 *U1, J3*	5.50 *I3*	5.10 *U1, I3,Y1*	7.425 *Y1*	7.575 *U1, I3,Y1*	10.90 *Y1*	8.40 *U1, Y1*	
	Sterling, Ill.	$80.00 *N4*				5.50 *N4*			5.20 *N4*					
	Indianapolis, Ind.									7.575 *J3*				15.70 *J3*
	Newport, Ky.								5.10 *A1*				8.40 *A1*	
	Middletown, Ohio													
	Niles, Warren, Ohio Sharon, Pa.		$99.50 *S1, C10*	$119.00 *C10,S1*					5.10 *R3, S1*	7.425 *R3, T4,S1*	7.575 *R3, S1*	10.80 *S1* 10.75 *R3*	8.40 *S1*	15.55 *S1*
	Owensboro, Ky.	$80.00 *G5*	$99.50 *G5*	$119.00 *G5*										
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Aliquippa, Pa.	$80.00 *U1, P6*	$99.50 *U1, C11,P6*	$119.00 *U1, C11,B7*	6.50 *U1*	5.50 *U1, J3*	8.05 *U1, J3*	5.50 *U1*	5.10 *P6*	7.425 *J3,B4*			8.40 *S9*	15.55 *S9*
	Weirton, Wheeling, Follansbee, W. Va.				6.50 *U1, W3*	5.50 *W3*		5.50 *W3*	5.10 *W3*	7.425 *W3,F3*	7.575 *W3*	10.80 *W3*		
	Youngstown, Ohio	$80.00 *R3*	$99.50 *Y1, C10*	$119.00 *Y1*			8.05 *Y1*			7.425 *Y1,J3*	7.575 *U1, Y1*	10.95 *Y1*	8.40 *U1, Y1*	15.55 *J3, Y1*
WEST	Fontana, Cal.	$90.50 *K1*	$109.00 *K1*	$140.00 *K1*		6.30 *K1*	8.85 *K1*	6.45 *K1*	5.85 *K1*	9.275 *K1*				
	Geneva, Utah		$99.50 *C7*			5.50 *C7*	8.05 *C7*							
	Kansas City, Mo.					5.60 *S2*	8.15 *S2*		5.35 *S2*		7.825 *S2*		8.35 *S2*	
	Los Angeles, Torrance, Cal.		$109.00 *B2*	$139.00 *B2*		6.20 *C7, B2*	8.75 *B2*		5.85 *C7, B2*	9.325 *J3* 9.475 *C1*			9.60 *B2*	17.75 *J3*
	Minnequa, Colo.					5.80 *C6*			6.20 *C6*	9.375 *C6*				
	Portland, Ore.					6.25 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$109.00 *B2*			6.15 *B2*	8.70 *B2*		5.85 *C7, B2*					
	Seattle, Wash.		$113.00 *B2*			6.25 *B2*	8.80 *B2*		6.10 *B2*					
SOUTH	Atlanta, Ga.					5.70 *A8*			5.10 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$80.00 *T2*	$99.50 *T2*			5.50 *T2 R3, C16*	8.05 *T2*		5.10 *T2, R3,C16*		7.575 *T2*			
	Houston, Lone Star, Texas		$104.50 *S2*	$124.00 *S2*		5.60 *S2*	8.15 *S2*		5.35 *S2*		7.825 *S2*		8.35 *S2*	

(Effective Aug. 11, 1958)

IRON AGE

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS								WIRE ROD	TINPLATE†		BLACK PLATE
		Hot rolled *18* ga. & hvyr.	Cold-rolled	Galvanized	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Cokes* *1.25*-lb. base box	Electro* *0.25*-lb. base box	Hollowware Enameling *29* ga.
EAST	Bethlehem, Pa.												
	Buffalo, N. Y.	5.10 *B3*	6.275 *B3*				7.525 *B3*	9.275 *B3*		6.40 *W6*	† Special coated mfg. terne deduct 50¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct $2.20 from 1.25 lb. coke base box. * COKES: 1.50-lb. add 25¢. ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 45¢.		
	Claymont, Del.												
	Coatesville, Pa.												
	Conshohocken, Pa.	5.15 *A2*	6.325 *A2*				7.575 *A2*						
	Harrisburg, Pa.												
	Hartford, Conn.												
	Johnstown, Pa.									6.40 *B3*			
	Fairless, Pa.	5.15 *U1*	6.325 *U1*				7.575 *U1*	9.775 *U1*			$10.15 *U1*	$8.85 *U1*	
	New Haven, Conn.												
	Phoenixville, Pa.												
	Sparrows Pt., Md.	5.10 *B3*	6.275 *B3*	6.875 *B3*			7.525 *B3*	9 .275 *B3*,	10.025 *B3*	6.50 *B3*	$10.15 *B3*	$8.85 *B3*	
	Worcester, Mass.									6.70 *A5*			
	Trenton, N. J.												
MIDDLE WEST	Alton, Ill.									6.60 *L1*			
	Ashland, Ky.	5.10 *A7*		6.875 *A7*	6.775 *A7*								
	Canton-Massillon, Dover, Ohio			6.875 *R1, R3*									
	Chicago, Joliet, Ill.	5.10 *W8, A1*					7.525 *U1*			6.40 *A5, R3, W8*			
	Sterling, Ill.									6.50 *N4, K2*			
	Cleveland, Ohio	5.10 *R3, J3*	6.275 *R3, J3*		6.775 *R3*		7.525 *R3, J3*	9.275 *R3 J3*		6.40 *A5*			
	Detroit, Mich.	5.10 *G3, M2*	6.275 *G3, M2*				7.525 *G3*	9.275 *G3*					
	Newport, Ky.	5.10 *A1*	6.275 *A1*										
	Gary, Ind. Harbor, Indiana	5.10 *U1, I3, Y1*	6.275 *U1, I3, Y1*	6.875 *U1, I3*	6.775 *U1, I3, Y1*	7.225 *U1*	7.525 *U1, Y1, I3*	9.275 *U1, Y1*		6.40 *Y1*	$10.05 *U1, Y1*	$8.75 *I3, U1, Y1*	7.50 *U1, Y1*
	Granite City, Ill.	5.20 *G2*	6.375 *G2*	6.975 *G2*	6.875 *G2*							$8.85 *G2*	7.60 *G2*
	Kokomo, Ind.			6.975 *C9*						6.50 *C9*			
	Mansfield, Ohio		6.275 *E2*			7.225 *E2*							
	Middletown, Ohio		6.275 *A7*	6.875 *A7*	6.775 *A7*	7.225 *A7*							
	Niles, Warren, Ohio Sharon, Pa.	5.10 *R3, N3, S1*	6.275 *R3*	6.875 *R3*	6.775 *N3, S1*	7.225 *N3, S1, R3*	7.525 *R3*	9.275 *S1, R3*				$8.75 *R3*	
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Donora, Pa. Aliquippa, Pa.	5.10 *U1, J3, P6*	6.275 *U1, J3, P6*	6.875 *U1, J3*	6.775 *U1*		7.525 *U1, J3,*	9.275 *U1, J3*	10.025 *U1,*	6.40 *A5, J3,P6*	$10.05 *W5, J3*	$8.75 *U1, J3*	7.50 *U1, J3*
	Portsmouth, Ohio	5.10 *P7*	6.275 *P7*							6.40 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	5.10 *W3, W5*	6.275 *W3, F3, W5*	6.875 *W3, W5*		7.225 *W3, W5*	7.525 *W3*	9.275 *W3*			$10.05 *W5, W3*	$8.75 *W5, W3*	7.50 *W5*
	Youngstown, Ohio	5.10 *U1, Y1*	6.275 *Y1*		6.775 *Y1*		7.525 *Y1*	9.275 *Y1*		6.40 *Y1*			
WEST	Fontana, Cal.	5.85 *K1*	7.525 *K1*				8.275 *K1*	10.575 *K1*			$10.80 *K1*	$9.50 *K1*	
	Geneva, Utah	5.20 *C7*											
	Kansas City, Mo.									6.65 *S2*			
	Los Angeles, Torrance, Cal.									7.20 *B2*			
	Minnequa, Colo.									6.65 *C6*			
	San Francisco, Niles, Pittsburgh, Cal.	5.80 *C7*	7.225 *C7*	7.625 *C7*						7.20 *C7*	$10.80 *C7*	$9.50 *C7*	
	Seattle, Wash.												
SOUTH	Atlanta, Ga												
	Fairfield, Ala. Alabama City, Ala.	5.10 *T2, R3*	6.275 *T2*	6.875 *T2, R3*	6.775 *T2*					6.40 *T2,R3*	$10.15 *T2*	$8.85 *T2*	
	Houston, Tex.									6.65 *S2*			

(Effective Aug. 11, 1958)

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				6.725 *B3*	9.025 *B3*	8.175 *B3*					
	Buffalo, N. Y.	5.675 *R3,B3*	5.675 *R3,B3*	7.70 *B5*	6.725 *B3,R3*	9.025 *B3,B5*	8.175 *B3*	5.30 *B3*				8.00 *W6*
	Claymont, Del.							5.30 *C4*		7.50 *C4*	7.95 *C4*	
	Coatesville, Pa.							5.30 *L4*		7.50 *L4*	7.95 *L4*	
	Conshohocken, Pa.							5.30 *A2*	6.375 *A2*	7.50 *A2*	7.95 *A2*	
	Harrisburg, Pa.							5.30 *P2*	6.475 *P2*			
	Milton, Pa.	5.825 *M7*	5.825 *M7*									
	Hartford, Conn.			8.15 *R3*		9.325 *R3*						
	Johnstown, Pa.	5.675 *B3*	5.675 *B3*		6.725 *B3*		8.175 *B3*	5.30 *B3*		7.50 *B3*	7.95 *B3*	8.00 *B3*
	Fairless, Pa.	5.825 *U1*	5.825 *U1*		6.875 *U1*							
	Newark, N. J. Camden, N. J.			8.10 *W10, P10*		9.20 *W10, P10*						
	Bridgeport, Conn. Putnam, Conn. Willimantic, Conn.			8.20 *W10* 8.15 *J3*	6.85 *N8*	9.175 *N8*						
	Sparrows Pt., Md.		5.675 *B3*					5.30 *B3*		7.50 *B3*	7.95 *B3*	8.10 *B3*
	Palmer, Worcester, Readville, Mass. Mansfield, Mass.			8.20 *B5, C14*		9.325 *A5,B5*						8.30 *A5, W6*
	Spring City, Pa.			8.10 *K4*		9.20 *K4*						
MIDDLE WEST	Alton, Ill.	5.875 *L1*										8.20 *L1*
	Ashland, Newport, Ky.							5.30 *A7,A1*		7.50 *A1*		
	Canton, Massillon, Ohio	6.15* *R3*		7.65 *R3,R2*	6.725 *R3,T5*	9.025 *R3,R2, T5*						
	Chicago, Joliet, Waukegan, Ill. Harvey, Ill.	5.675 *U1,R3, W8,N4,P13*	5.675 *U1,R3, N4,P13,W8*	7.65 *A5, W10,W8, B5,L2,N9*	6.725 *U1,R3, W8*	9.025 *A5, W10,W8, L2,N8,B5*	8.30 *U1,W8*	5.30 *U1,A1, W8,I3*	6.375 *U1*	7.50 *U1, W8*	7.95 *U1, W8*	8.00 *A5,R3, W8,N4, K2,W7*
	Cleveland, Ohio Elyria, Ohio	5.675 *R3*	5.675 *R3*	7.65 *A5,C13, C18*		9.025 *A5, C13,C18*	8.30 *R3*	5.40 *R3,J3 E2*	6.375 *J3*		7.95 *R3,J3*	8.00 *A5, C13*
	Detroit, Mich.	5.775 *G3*	6.025 *G3*	7.90 *P3* 7.85 *P8,B5*	6.725 *R5,G3*	9.025 *R3* 9.225 *B5,P3, P8*	8.175 *G3*	5.30 *G3*		7.50 *G3*	7.95 *G3*	
	Duluth, Minn.											8.00 *A5*
	Gary, Ind. Harbor, Crawfordsville, Hammond, Ind.	5.675 *U1,I3, Y1*	5.675 *U1,I3, Y1*	7.65 *R3,J3*	6.725 *U1,I3, Y1*	9.025 *R3,M4*	8.30 *U1,Y1*	5.30 *U1,I3, Y1*	6.375 *J3, I1*	7.50 *U1, Y1*	7.95 *U1, Y1,I3*	8.10 *M4*
	Granite City, Ill.							5.40 *G2*				
	Kokomo, Ind.		5.775 *C9*									8.10 *C9*
	Sterling, Ill.	5.775 *N4*	5.775 *N4*					5.30 *N4*				8.10 *K2*
	Niles, Warren, Ohio Sharon, Pa.			7.65 *C10*	6.725 *C10,S1*	9.025 *C10*	7.925 *S1*	5.30 *R3,S1*		7.50 *S1*	7.95 *R3, S1*	
	Owensboro, Ky.	5.675 *G5*			6.725 *G5*							
	Pittsburgh, Midland, Donora, Aliquippa, Pa.	5.675 *U1,J3*	5.675 *U1,J3*	7.65 *A5,B4, R3,J3,C11, W10,S9,C8*	6.725 *U1,J3, C11,B7*	9.025 *A5, W10,R3,S9, C11,C8,M9*	8.30 *U1,J3*	5.30 *U1, J3*	6.375 *U1*	7.50 *U1 J3,B7*	7.95 *U1, J3,B7*	8.00 *A5 J3,P6*
	Portsmouth, Ohio											8.00 *P7*
	Weirton, Wheeling, Follansbee, W. Va.							5.30 *W5*				
	Youngstown, Ohio	5.675 *U1,R3, Y1*	5.675 *U1,R3, Y1*	7.65 *A1,Y1, F2*	6.725 *U1,Y1*	9.025 *Y1,F2*	8.30 *U1,Y1*	5.30 *U1, R3,Y1*		7.50 *Y1*	7.95 *U1, R3,Y1*	8.00 *Y1*
WEST	Emeryville, Cal. Fontana, Cal.	6.425 *J5* 6.375 *K1*	6.425 *J5* 6.375 *K1*		7.775 *K1*			6.10 *K1*		8.30 *K1*	8.75 *K1*	
	Geneva, Utah							5.30 *C7*			7.95 *C7*	
	Kansas City, Mo.	5.925 *S2*	5.925 *S2*		6.975 *S2*		8.175 *S2*					8.25 *S2*
	Los Angeles, Torrance, Cal.	6.375 *C7,B2*	6.375 *C7,B2*	9.10 *R3,P14*	7.775 *B2*	11.00 *P14*						8.95 *B2*
	Minnequa, Colo.	6.125 *C6*	6.125 *C6*					6.15 *C6*				8.25 *C6*
	Portland, Ore.	6.425 *O2*	6.425 *O2*									
	San Francisco, Niles, Pittsburg, Cal.	6.375 *C7* 6.425 *B2*	6.375 *C7* 6.425 *B2*									8.95 *C7,C6*
	Seattle, Wash.	6.425 *B2,N6*	6.425 *B2*					6.20 *B2*		8.40 *B2*	8.85 *B2*	
SOUTH	Atlanta, Ga.	5.875 *A8*	5.875 *A8*									8.00 *A8*
	Fairfield, Ala. City, Birmingham, Ala.	5.675 *T2,R3, C16*	5.675 *T2,R3, C16*	8.25 *C16*				5.30 *T2, R3*			7.95 *T2*	8.00 *T2,R3*
	Houston, Ft. Worth, Lone Star, Tex.	5.925 *S2*	5.925 *S2*		6.975 *S2*		8.175 *S2*	5.60 *S2*		7.60 *S2*	8.15 *S2*	8.25 *S2*

† Merchant Quality—Special Quality 35¢ higher. (Effective Aug. 11, 1958) * Special Quality.

STEEL PRICES

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire-Spencer Steel Div., Birdsboro, Pa.
B7 A. M. Byers, Pittsburgh
B8 Bracburn Alloy Steel Corp., Braeburn, Pa.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace, Inc., Chester, Pa.
C18 Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.

D1 Detroit Steel Corp., Detroit
D2 Dearborn Div., Sharon Steel Corp.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owensboro, Ky.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Carpenter Steel of New England, Inc., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.
P15 Philadelphia Steel and Wire Corp.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 J. & L. Steel Co., Stainless Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Div. of Copperweld Steel Co., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo
S11 Southern Electric Steel Co., Birmingham

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown, O.

PIPE AND TUBING — **Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.**

	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
STANDARD T. & C.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
Sparrows Pt. *B3*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Youngstown *R3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Fontana *K1*	*10.75	*26.00	*7.75	*22.00	*4.25	*17.50	*1.75	*16.75	*1.25	*15.75	*0.75	*15.25	0.75	*15.50								
Pittsburgh *J3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Alton, Ill. *L1*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Sharon *M3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Fairless *N2*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Pittsburgh *N1*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Wheeling *W5*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Wheatland *W4*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Youngstown *Y1*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Indiana Harbor *Y1*	1.25	*14.0	4.25	*10.0	7.75	*5.50	10.25	*4.75	10.75	*3.75	11.25	*3.25	12.75	*3.50								
Lorain *N2*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Youngstown *R3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Fairless *N2*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Fontana *K1*	*6.25		*2.25		0.75		1.25		1.75		2.25		2.75									
Pittsburgh *J3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Alton, Ill. *L1*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Sharon *M3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Pittsburgh *N1*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Wheeling *W5*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Wheatland *W4*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Youngstown *Y1*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Indiana Harbor *Y1*	5.75	*8.0	9.75	*4.0	12.75	0.50	13.25	*0.75	13.78	0.25	14.25	0.75	14.75	*0.50								
Lorain *N2*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50

Threads only, buttweld and seamless 2¼ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ⅛, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2-in., 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 10¢ per lb.

(Effective Aug. 11, 1958)

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots for minus 100 mesh

Swedish sponge iron, del. East of Miss. River, ocean bags, 23,000 lb. and over ..... 10.5¢
F.O.B. Riverton or Camden, New Jersey, west of Miss. River .... 9.5¢
Domestic sponge iron, 98+% Fe, 23,000 lb. and over del'd East of Miss. River ..... 10.5¢
F.O.B. Riverton, New Jersey, West of Miss. River ..... 9.5¢
Canadian sponge iron, del'd in East, carloads ..... 10.5¢
Atomized iron powder, 98% + Fe, 40 mesh,, F.O.B. Easton, Pa., in 100 lb bags ..... 7.7¢
Atomized iron powder, 98% + Fe, F.O.B. Easton, Pa., in 100 lb. bags. Freight allowed east of Miss. River..... 10.5¢
Atomized iron powder, 98% + Fe. Cutting and scarfing grade, F.O.B. Easton, Pa. ..... 8.5¢
Electrolytic iron, annealed, imported 99.5+% Fe .... 27.5¢
domestic 99.5+% Fe .... 36.5¢
Electrolytic iron, unannealed minus 325 mesh, 99+% Fe 57.0¢
Electrolytic iron melting stock, 99.84% pure ..... 27.0¢
Carbonyl iron size 3 to 20 micron, 98%, 99.8+% Fe.. 88.0¢ to $2.85
Aluminum, freight allowed.. 38.00¢
Brass, 10 ton lots ..... 31.1¢ to 47.1¢
Copper, electrolytic ..... 41.50¢
Copper, reduced ..... 40.3¢ to 48.8¢
Cadmium, 100-199 lb. 95¢ plus metal value
Chromium, electrolytic, 99.85% min. Fe. 03 max. Del'd ... $5.00
Lead, f.o.b. Hammond, Ind. . 19¢
Manganese f.o.b. Extron, Pa. 46.0¢
Molybdenum, 99% ..... $3.60 to $3.95
Nickel, chemically precipitated $1.05
Nickel, unannealed $1.00
Nickel, annealed $1.06
Nickel, spherical, unannealed #80 ..... $1.13
Silicon ..... 42.50¢
Solder powder .....13¢ plus met. value
Stainless steel, 302 ..... $1.02
Stainless steel, 316 ..... $1.30
Tin .....14.00¢ plus metal value
Tungsten, 99% (65 mesh) $3.15 (nominal)
Zinc, 5000 lb & over.....17.5¢ to 30.7¢

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts	Full Container Price	30 Containers	20,000 Lb.	40,000 Lb.
	Pct. Discounts			
½" and smaller x 6" and shorter	49	54	56	57
9/16" thru 1" x longer than 6"	35	40	43	45
Rolled thread carriage bolts ½" & smaller x 6" and shorter	49	54	56	57
Lag, all diam. x 6" & shorter	49	54	56	57
Lag, all diam. longer than 6 in.	39	44½	47	48½
Plow bolts, ½" and smaller x 6" and shorter	49	54	56	57

(Add 25 pct for broken case quantities)

Nuts, Hex, HP reg. & hvy.	Full case or Keg price
¾ in. or smaller	60½
⅞ in. to 1 in. inclusive	55½
1⅛ in. to 1½ in. inclusive	58½
1⅝ in. and larger	53½
C. P. Hex, reg. & hvy.	
¾ in. and smaller	60½
⅞ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½
Hot Galv. Hex Nuts (All Types)	
¾ in. and smaller	46½
Semi-finished Hex Nuts	
⅝ in. or smaller	60½
⅞ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½
(Add 25 pct for broken case or keg quantities)	
Finished	
⅞ in. and smaller	63
Rivets	
	Base per 100 lb
½ in. and larger	$12.25
	Pct. Off List
7/16 in. and smaller	19

Cap Screws *Discount (Packages)*

Full Finished H. C. Heat Treat

New std. hex head, packaged		
⅜" diam. and smaller x 6" and shorter	40	26
⅜", ⅞", and 1" diam. x 6" and shorter	22	3
⅜" diam. and smaller x longer than 6"	8	+13
⅞", ⅞", and 1" diam. x longer than 6"	+ 6	+32
	C-1018 Steel Full-Finished Cartons	Bulk
¼" through ⅝" dia. x 6" and shorter	58	49
¾" through 1" dia. x 6" and shorter	45	33

Minimum quantity—¼" through ⅝" diam., 15,000 pieces; 1/16" through ⅝" diam., 5,000 pieces; ¾" through 1" diam., 2,000 pieces.

Machine Screws & Stove Bolts

Plain Finish	Discount Mach. Screws	Stove Bolts
Cartons	60	60
Bulk — *Quantity*		
To ¼" diam. incl. — 25,000-and over	60	..
5/16 to ½" diam. incl. — 15,000-200,000	60	..

Machine Screws & Stove Bolt Nuts

	Discount Hex	Square
In Cartons	16	19
Quantity		
In Bulk ⅜" diam. & smaller — 25,000 and over	14	16

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, frt allowed in quantity)

Copper
Rolled elliptical, 18 in. or longer, 5000 lb lots 40.00
Electrodeposited 32.75
Brass, 80-20, ball anodes, 2000 lb or more 45.50
Zinc, ball anodes, 2000 lb lots 16.50
(for elliptical add 1¢ per lb)
Nickel, 99 pct plus, rolled carbon, 5000 lb 1.0225
(Rolled depolarized add 3¢ per lb)
Cadmium 1.55
Tin, ball anodes $1.13 per lb (approx.).

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum 68.70
Copper sulphate, 100 lb bags, per cwt. 22.15
Nickel salts, single, 100 lb bags.... 36.00
Nickel chloride, freight allowed, 300 lb 42.00
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums 24.05
(Philadelphia price 24.50)
Zinc cyanide, 100 lb 60.75
Potassium cyanide, 100 lb drum N. Y. 48.00
Chromic acid, flake type, 10,000 lb or more 30.44

CAST IRON WATER PIPE INDEX

Birmingham 125.8
New York 138.7
Chicago 140.9
San Francisco-L. A. 148.6

Dec. 1955, value, Class B or heavier 5 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

WARE-HOUSES

Metropolitan Price, dollars per 100 lb.

Cities	City Delivery; Charge	Sheets: Hot-Rolled (18 ga. & hvy.)	Sheets: Cold-Rolled (15 gage)	Sheets: Galvanized (10 gage)††	Strip: Hot-Rolled	Plates	Shapes: Standard Structures	Bars: Hot-Rolled (merchant)	Bars: Cold-Finished	Alloy Bars: Hot-Rolled 4615 As rolled	Alloy Bars: Hot-Rolled 4140 Annealed	Alloy Bars: Cold-Drawn 4615 As rolled	Alloy Bars: Cold-Drawn 4140 Annealed
Atlanta		8.59	9.87	10.13	8.64	8.97	9.05	9.01	10.68	.....	.....	.....	.....
Baltimore	$.10	8.10	9.00	9.78	8.80	8.76	8.60	8.75	12.43	16.28	15.28	19.83	19.08
Birmingham		8.18	9.45	10.46	8.23	8.56	8.64	8.60	10.56*	.....	.....	.....	.....
Boston	.10	9.48	10.54	11.55	9.52	9.82	9.73	9.83	13.28*	16.38	15.38	19.93	19.18
Buffalo	.15	8.40	9.15	11.22	8.65	9.05	9.05	8.95	11.15*	16.34	15.15	19.01	18.95
Chicago	.15	8.35	9.60	10.25	8.38	8.71	8.79	8.75	8.95	15.80	14.80	19.35	18.60
Cincinnati	.15	8.49	9.65	10.25	8.69	9.08	9.33	9.07	9.46	15.61	15.11	18.96	18.91
Cleveland	.15	8.33	9.60	10.35	8.48	8.94	9.16	8.84	11.95*	15.89	14.89	19.29	18.69
Denver	.20	9.60	11.84	12.94	9.63	9.96	10.04	10.00	11.19	.....	.....	.....	20.84
Detroit	.15	8.58	9.85	10.60	8.73	9.06	9.33	9.05	9.30	15.46	15.06	18.81	18.86
Houston		7.10	8.40	.....	7.25	7.70	7.25	7.20	11.10	16.20	15.25	19.65	18.95
Kansas City	.20	9.02	10.27	10.82	9.05	9.38	9.46	9.42	9.87	20.02	15.47	20.02	19.27
Los Angeles		8.25	10.30	12.10	8.90	8.85	8.70	8.75	12.10*	17.05	16.10	21.05	20.35
Memphis	.15	8.55	9.80	.....	8.60	8.93	9.01	8.97	12 11*	.....	.....	.....	.....
Milwaukee	.15	8.48	9.73	10.38	8.51	8.84	9.00	8.88	9.18	15.93	14.93	19.48	18.73
New York	.10	8.97	10.23	10.66	9.41	9.53	9.45	9.67	13.31*	16.19	15.19	19.74	18.99
Norfolk	.20	8.20	.....	.....	8.90	8.65	9.20	8.90	10.70	.....	.....	.....	.....
Philadelphia	.10	8.10	9.00	10.02	8.79	8.87	8.69	8.75	11.61*	16.11	15.11	19.66	18.91
Pittsburgh	.15	8.33	9.00	10.60	8.48	8.71	8.79	8.75	10.95*	15.89	14.89	19.35	18.60
Portland		10.00[1]	11.75[2]	13.30[3]	11.95[4]	11.50[5]	11.10[6]	9.85[7]	16.00	18.50	17.45	20.75	20.25
San Francisco	.10	9.45	10.85	11.10	9.55	9.70	9.60	9.80	13.10	17.05	16.10	21.05	20.35
Seattle		9.95	11.15	12.20	10.00	9.70	9.80	10.10	14.05	17.15	16.35	20.65	20.15
Spokane	.15	10.10	11.30	12.15	10.15	9.85	9.95	10.25	14.20	.....	17.35	21.55	21.05
St. Louis	.15	8.69	9.94	10.61	8.74	9.08	9.25	9.12	9.56	16.16	15.16	19.71	18.96
St. Paul	.15	8.94	10.19	10.86	8.99	9.45	9.33	9.37	9.81	.....	15.41	.....	19.21

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may be combined with each other for quantity. **All sizes except 18 and 16 gage.

†† 10¢ zinc. ‡ Deduct for country delivery. * C1018—1 in. rounds. [1] 10 ga. x 36" x 120"; [2] 20 ga. x 36" x 120"; [3] 26 ga. x 30" x 96"; [4] 4½" x 1" in lots of 1000 to 9999; [5] sheared plate ¼" x 84" in lots of 1000 to 9999; [6] 8" x 5.70" in lots of 1000 to 9999; [7] M-1020—1-in. rounds in lots of 1000 to 9999.

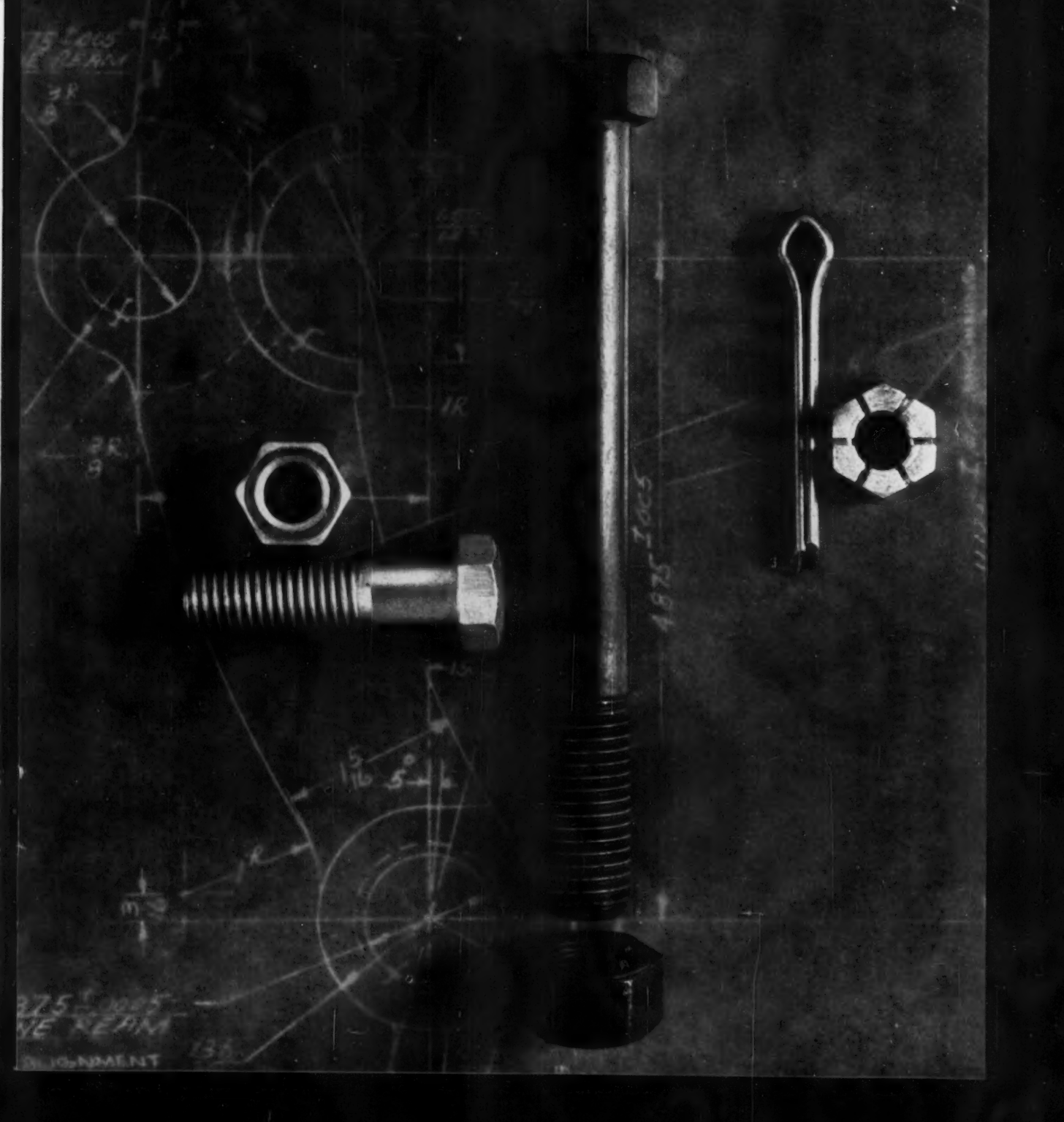
(Effective Aug. 11, 1958)

Every fastener we make is statistically quality controlled ...even though made in the millions. Only the most modern methods and equipment are used. When you ask for Lamson fasteners - whether standards or specials - you know you're getting the very best. Men who make decisions involving company money have come to expect and depend on this kind of product from us.

L & S

The Lamson & Sessions Co.

5000 Tiedeman Road, Cleveland 9, Ohio • Plants at Cleveland and Kent, Ohio • Chicago • Birmingham



TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.84	T-1
18	4	1	—	5	2.545	T-4
18	4	2	—	—	2.005	T-2
1.5	4	1.5	8	—	1.20	M-1
6	4	3	6	—	1.59	M-3
6	4	2	5	—	1.345	M-2
High-carbon chromium..					.955	D-3, D-5
Oil hardened manganese					.505	O-2
Special carbon					.38	W-1
Extra carbon					.38	W-1
Regular carbon					.325	W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b.

Stainless Type	Cladding	Plate (*A3, J2, L4, C4*) 10 pct	15 pct	20 pct	Sheet (*I2*) 20 pct
	302	.....	.....	.....	37.50
	304	37.95	42.25	46.70	40.00
	316	44.40	49.50	54.50	58.75
	321	40.05	44.60	49.30	47.25
	347	42.40	47.55	52.00	57.00
	405	29.85	33.35	36.85	.....
	410	29.55	33.10	36.70	.....
	430	29.80	33.55	37.25	.....

CR Strip (S9) Copper, 10 pct, 2 sides, 38.75; 1 side, 33.10.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer *U1*	5.525	6.50	6.975	.....	.....	.....	14.75
Cleveland *R3*	.....	.....	.....	10 10	.....	.....	.....
So. Chicago *R3*	.....	.....	.....	.....	.....	.....	.....
Ensley *T2*	5.525	6.50	.....	10 10	.....	6.60	.....
Fairfield *T2*	.....	6.50	.....	10 10	.....	.....	.....
Gary *U1*	5.525	.....	.....	.....	.....	6.60	.....
Huntington *C16*	.....	6.50	.....	.....	.....	.....	.....
Ind. Harbor *I1*	5.525	.....	6.975	10 10	.....	6.60	.....
Ind. Harbor *Y1*	.....	.....	.....	10 10	.....	.....	.....
Johnstown *B3*	.....	6.50	.....	.....	.....	.....	.....
Joliet *U1*	.....	.....	6.975	.....	.....	.....	.....
Kansas City *S2*	.....	.....	.....	10 10	.....	.....	14.75
Lackawanna *B3*	5.525	6.50	6.975	.....	.....	6.60	.....
Lebanon *B3*	.....	.....	6.975	.....	14.50	.....	14.75
Minnequa *C6*	5.525	7.00	6.975	10 10	.....	6.60	14.75
Pittsburgh *P5*	.....	.....	.....	.....	.....	.....	14.75
Pittsburgh *J3*	.....	.....	.....	10 10	.....	.....	.....
Seattle *B2*	.....	.....	.....	.....	.....	6.75	15.75
Steelton *B3*	5.525	.....	6.975	.....	.....	6.60	.....
Struthers *Y1*	.....	.....	.....	10 10	.....	.....	.....
Torrance *C7*	.....	.....	.....	.....	.....	6.75	.....
Williamsport *S5*	.....	6.50	.....	.....	.....	.....	.....
Youngstown *R3*	.....	.....	.....	10 10	.....	.....	.....

COKE

	Net-Ton
Furnace, beehive (f.o.b.) Connellsville, Pa.	$15.00 to $15.75
Foundry, beehive (f.o.b.)	$17.50 to $19.00
Foundry oven coke	
Buffalo, del'd	$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.55
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	29.50
Swedeland, Pa., f.o.b.	29.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Is., Pa.	29.25

LAKE SUPERIOR ORES

51.50% Fe natural content, delivered lower Lake ports. Prices for 1958 season. Freight changes for seller's account.

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Reduced (Coiled or Cut Length) Semi-Processed	Fully Processed
Field	.....	.....	9.875
Armature	11.70	11.20	11.70
Elect.	12.40	11.90	12.40
Special Motor	.....	12.475	.....
Motor	13.55	13.05	13.55
Dynamo	14.65	14.15	14.65
Trans. 72	15.70	15.20	15.70
Trans. 65	16.30	Grain Oriented	
Trans. 58	16.80	Trans. 80	19.70
Trans. 52	17.85	Trans. 73	20.20
		Trans. 66	20.70

Producing points: Beech Bottom (*W5*); Brackenridge (*A3*); Granite City (*G2*); Indiana Harbor (*I3*); Mansfield (*E2*); Newport, Ky. (*A9*); Niles, O. (*N3*); Vandergrift (*U1*); Warren, O. (*R3*); Zanesville, Butler (*A7*).

ELECTRODES

Cents per lb. f.o.b. plant, threaded, with nipples, unboxed.

GRAPHITE Diam. (In.)	Length (In.)	Price	CARBON* Diam. (In.)	Length (In.)	Price
24	84	26.00	40	100, 110	10.70
20	72	25.25	35	110	10.70
18	72	25.75	30	110	10.85
14	72	25.75	24	72 to 84	11.25
12	72	26.25	20	90	11.00
10	60	28.00	17	72	11.40
10	48	28.50	14	72	11.85
7	60	28.25	12	60	12.95
6	60	31.50	10	60	13.00
4	40	35.00	8	60	13.30
3	40	37.00			
2½	30	39.25			
2	24	60.75			

* Prices shown cover carbon nipples.

REFRACTORIES

Fire Clay Brick

Carloads per 1000

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.00)	$135.00
No. 1 Ohio	120.00
Sec. Quality, Pa., Md., Ky., Mo., Ill.	120.00
No. 2 Ohio	103.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $2.00)	21.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$150.00
Childs, Hays, Pa.	155.00
Chicago District	160.00
Western Utah	175.00
California	180.00
Super Duty Hays, Pa., Athens, Tex., Windham, Warren, O., Morrisville	157.00-160.00
Silica cement, net ton, bulk, Latrobe	28.50
Silica cement, net ton, bulk, Chicago	25.50
Silica cement, net ton, bulk, Ensley, Ala.	26.50
Silica cement, net ton, bulk, Mt. Union	24.50
Silica cement, net ton, bulk, Utah and Calif.	37.00

Chrome Brick

Per net ton

Standard chemically bonded, Balt.	$105.00
Standard chemically bonded, Curtiner, Calif.	115.00
Burned, Balt.	99.00

Magnesite Brick

Standard Baltimore	$131.00
Chemically bonded, Baltimore	116.00

Grain Magnesite

St. ⅜ to ½-in. grains

Domestic, f.o.b. Baltimore in bulk.	$73.00
Domestic, f.o.b. Chewalah, Wash., Luning, Nev. in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in: Pa., W. Va., Ohio	$16.75
Midwest	17.00
Missouri Valley	15.00

(Effective Aug. 11, 1958)

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Ann'ld ¢/lb.	Merch. Wire Galv. ¢ lb.
Alabama City *R3*	173	187	..	212	193	8.65	9.20
Aliquippa *J3***	173	190	..	..	190	8.65	9.325
Atlanta *A8***	175	192	..	214	198	8.75	9.425
Bartonville *K2***	175	192	178	214	198	8.75	9.425**
Buffalo *W6*	.....	.....	.....	.....	.....	8.65	8.95*
Chicago *N4****	173	190	172	212	196	8.65	9.325
Cleveland *A6*	.....	.....	.....	.....	.....	.....	.....
Cleveland *A5*	.....	.....	.....	.....	.....	9.00	.....
Crawf'dsv. *M4***	175	192	..	214	198	8.75	9.425
Donora, Pa. *A5*	173	187	..	212	193	9.00	9.20
Duluth *A5*	173	187	..	212	193	9.00	9.20
Fairfield, Ala. *T2*	173	187	..	212	193	9.00	9.20
Galveston *D4*	9.10‡	.....	.....	.....	.....	.....	.....
Houston *S2*	178	192	..	217	198	8.90	9.45
Jacksonville *M4*	184-1	197	..	219	203	9.00	9.675
Johnstown *B3***	173	190	172	..	196**	8.65	9.325**
Joliet, Ill. *A5*	173	187	..	212	193	9.00	9.20
Kokomo *C9**	175	189	..	214	195*	8.75	9.30*
L. Angeles *B2****	.....	.....	.....	.....	.....	9.60	10.275
Kansas City *S2**	178	192	..	217	198*	8.90	9.45*
Minnequa *C6†*	178	192	177	217	198†	8.90	9.45†
Monessen *P6*	.....	.....	.....	.....	193	8.65	9.20
Palmer, Mass. *W6*	.....	.....	.....	.....	.....	8.95	9.50*
Pittsburg, Cal. *C7*	192	210	.....	.....	213	9.60	10.15
Rankin, Pa. *A5*	173	187	.....	.....	193	9.00	9.20
So. Chicago *R3*	173	187	.....	.....	193	8.65	9.20
S. San Fran. *C6†*	.....	.....	.....	236	.....	9.60	10.15†
Sparrows Pt. *B3***	175	.....	.....	214	198	8.75	9.425
Sterling, Ill. *N4****	175	192	172	214	198	8.75	9.425
Struthers, O. *Y1**	.....	.....	.....	.....	.....	8.65	9.30
Worcester *A5*	179	.....	.....	.....	.....	9.30	9.50
Williamsport *S5*	.....	.....	.....	.....	.....	.....	.....

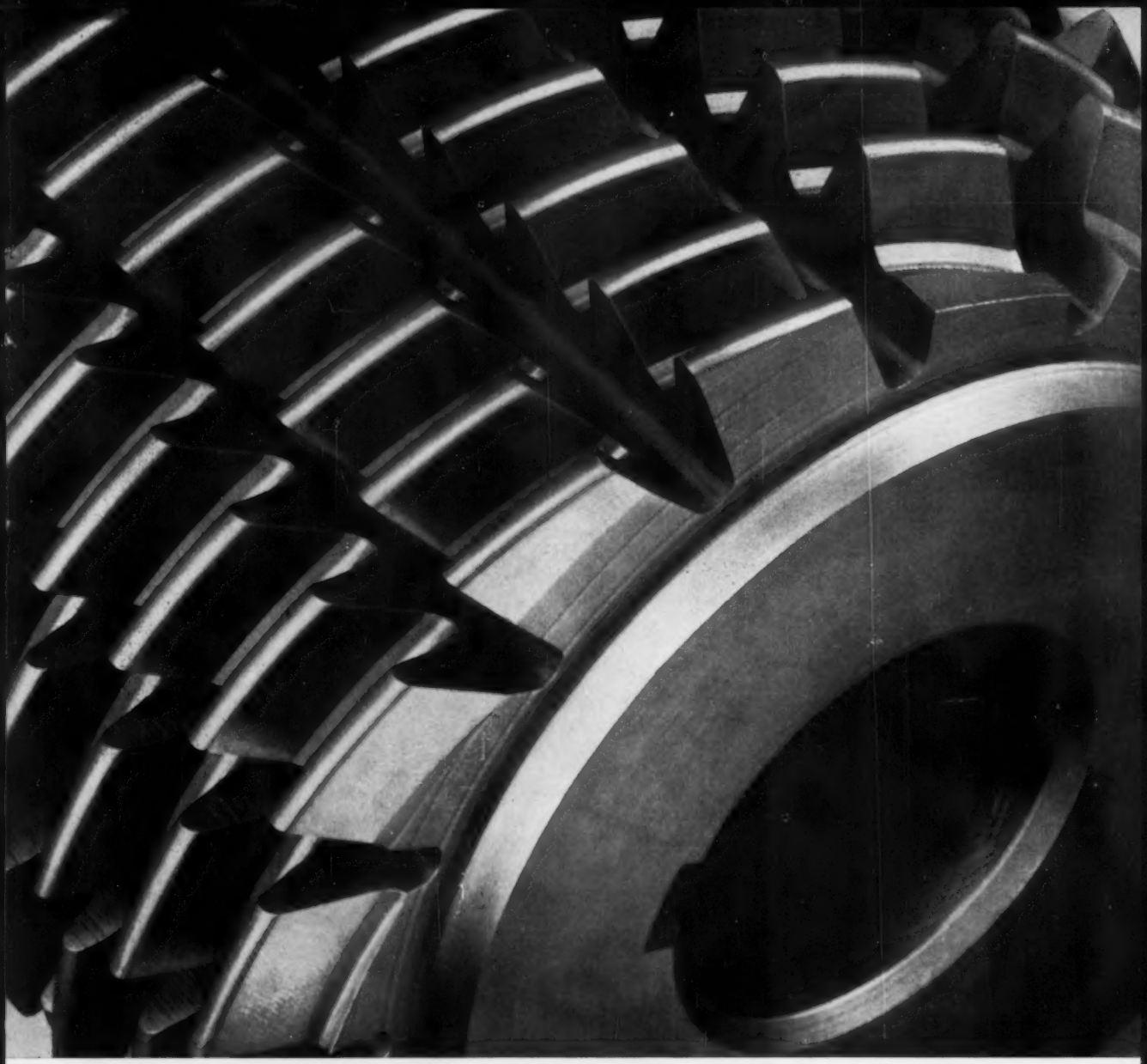
* Zinc less than .10¢.
** 11-12¢ zinc.
*** 10¢ zinc.
† Plus zinc extras.
‡ Wholesalers only.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Baltimore, Md. *T8*	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. *W12*	.....	10.70	12.90	16.10	19.30
Boston *T8*	9.50	10.70	12.90	15.90	18.85
Buffalo, N. Y. *R7*	8.95	10.40	12.60	15.60	18.55
Carnegie, Pa. *S9*	8.95	10.40	12.60	15.60	18.55
Cleveland *A5*	8.95	10.40	12.60	15.60	18.55
Dearborn *S1*	9.05	10.50	12.70	.....	.....
Detroit *D1*	9.05	10.50	12.70	15.70	.....
Detroit *D2*	9.05	10.50	12.70	.....	.....
Dover, O. *G4*	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. *M8*	9.05	10.40	12.60	.....	.....
Franklin Park, Ill. *T8*	9.05	10.40	12.60	15.60	18.55
Harrison, N. J. *C11*	.....	.....	12.90	16.10	19.30
Indianapolis *J3*	9.10	10.55	12.60	15.60	18.55
Los Angeles *C1*	11.15	12.60	14.80	17.80	.....
New Britain, Conn. *S7*	9.40	10.70	12.90	15.90	18.85
New Castle, Pa. *B4*	8.95	10.40	12.60	15.60	.....
New Haven, Conn. *D1*	9.40	10.70	12.90	16.90	.....
Pawtucket, R. I. *N7*	9.50	10.70	12.90	15.90	18.85
Riverdale, Ill. *A1*	9.05	10.40	12.60	15.60	18.55
Sharon, Pa. *S1*	8.95	10.40	12.60	15.60	18.55
Trenton, *R4*	.....	10.70	12.90	16.10	19.30
Wallingford *W1*	9.40	10.70	12.90	15.90	18.55
Warren, Ohio *T4*	8.95	10.40	12.60	15.60	18.75
Worcester, Mass. *A5*	9.50	10.70	12.90	15.90	18.85
Youngstown *J3*	8.95	10.40	12.60	15.60	18.55

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
Babcock & Wilcox	2	13	36.34	42.56	35.22
	2½	12	48.94	57.31	47.43
	3	12	56.51	66.18	54.77
	3½	11	65.97	77.25	63.93
	4	10	87.61	102.59	85.53
National Tube	2	13	36.34	42.56	35.22
	2½	12	48.94	57.31	47.43
	3	12	56.51	66.18	54.77
	3½	11	65.97	77.25	63.93
	4	10	87.61	102.59	85.53
Pittsburgh Steel	2	13	36.34	42.56	.....
	2½	12	48.94	57.31	.....
	3	12	56.51	66.18	.....
	3½	11	65.97	77.25	.....
	4	10	87.61	102.59	.....



Finish obtained in machining REX M-2-S eliminates the need for finish grinding this 4" x 4" unground double thread cutting hob.

Hobs seldom need finish grinding when made of low cost REX M-2-S

This is the actual finish obtained – without costly finish grinding – with REX M-2-S,® Crucible's *sulfur-bearing*, tungsten-molybdenum type high speed steel. The chemistry of this resulfurized steel readily provides the machinability needed for the final, critical "backing-off" operation in making hobs. It doesn't tend to tear or produce rough finishes – as nonsulfur-bearing steels of this type so often do.

REX M-2-S costs about 30% less than T-1 type, too, because it's lower priced per pound, and provides 5.4% more linear feet per pound.

Crucible REX M-2-S is also equal in red hardness to the T-1 type, and even more resistant to abrasion. It's also tougher than any other tungsten type high speed steels, and hardenable over a wider range than any other molybdenum high speed steels.

Qualities like these make REX-M-2-S extremely suitable (and economical) for broaches, chasers, lathe tools, reamers, taps and hobs as well as other tools normally requiring high speed steel.

For further information, just ask for details on REX M-2-S – or all the Crucible high speed steels today. Write: *Crucible Steel Company of America, Dept. TH06, The Oliver Building, Mellon Square. Pittsburgh 22, Pa.*

CRUCIBLE STEEL COMPANY OF AMERICA

Canadian Distributor—Railway & Power Engineering Corp., Ltd.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	68.00	68.50	69.00	69.50	.....
Birmingham *R3*	62.00	62.50*	.....	.....	.....
Birmingham *W9*	62.00	62.50*	66.50	.....	.....
Birmingham *U4*	62.00	62.50*	66.50	.....	.....
Buffalo *R5*	66.00	66.50	67.00	67.50	.....
Buffalo *H1*	66.00	66.50	67.00	67.50	.....
Buffalo *W6*	66.00	66.50	67.00	67.50	.....
Chester *P2*	66.50	67.00	67.50	.....	.....
Chicago *I4*	66.00	66.50	66.50	67.00	.....
Cleveland *A5*	66.00	66.50	66.50	67.00	71.00†
Cleveland *R3*	66.00	66.50	66.50	67.00	.....
Duluth *I4*	66.00	66.50	66.50	67.00	71.00†
Erie *I4*	66.00	66.50	66.50	67.00	71.00†
Everett *M6*	67.50	68.00	68.50	.....	.....
Fontana *K1*	75.00	75.50	.....	.....	.....
Geneva, Utah *C7*	66.00	66.50	.....	.....	.....
Granite City *G2*	67.90	68.40	68.90	.....	.....
Hubbard *Y1*	.....	.....	66.50	.....	.....
Ironton, Utah *C7*	66.00	66.50	.....	.....	.....
Midland *C11*	66.00	.....	.....	.....	.....
Minnequa *C6*	68.00	68.50	69.00	.....	.....
Monessen *P6*	66.00	.....	.....	.....	.....
Neville Is. *P4*	66.00	66.50	66.50	67.00	71.00†
N. Tonawanda *T1*	.....	66.50	67.00	67.50	.....
Sharpsville *S3*	66.00	.....	66.50	67.00	.....
So. Chicago *R3*	66.00	66.50	66.50	67.00	.....
So. Chicago *W8*	66.00	.....	66.50	67.00	.....
Swedeland *A2*	68.00	68.50	69.00	69.50	.....
Toledo *I4*	66.00	66.50	66.50	67.00	.....
Troy, N. Y. *R3*	68.00	66.50	69.00	69.50	74.00
Youngstown *Y1*	.....	.....	66.50	67.00	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.50 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Add $1.00 for 0.31-0.69 pct phos.

Silvery Iron: Buffalo (6 pct), *H1*, $79.25; Jackson *J1*, *I4* (Globe Div.), $78.00; Niagara Falls (15.01-15.50), $101.00; Keokuk (14.01-14.50), $103.50; (15.51-16.00), $106.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add $1.25 for each 0.50 pct manganese over 1.00 pct. Bessemer silvery pig iron (under .10 pct phos.): $64.00. Add $1.00 premium for all grades silvery to 18 pct.

† Intermediate low phos.

STAINLESS STEEL

Base price cents per lb f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.00	23.75	23.25	25.25	—	27.00	39.75	32.25	37.00	—	16.75	—	17.00
Slabs, billets	27.00	27.00	28.00	31.50	32.00	33.25	49.50	40.00	46.50	—	21.50	—	21.75
Billets, forging	—	36.50	37.25	38.00	41.00	40.50	62.25	47.00	55.75	32.00	28.25	28.75	28.75
Bars, struct.	42.00	43.00	44.25	45.00	48.00	47.75	73.00	55.50	64.75	37.75	33.75	34.25	34.25
Plates	39.25	40.00	41.25	42.25	50.00	45.75	71.75	54.75	64.75	30.00	30.00	36.75	31.00
Sheets	48.50	49.25	51.25	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Wire CF; Rod HR	40.00	40.75	42.00	42.75	45.50	45.25	69.25	52.50 52.75	61.50	35.75	32.00	32.50	32.50

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11;* Brackenridge, Pa., *A3;* Butler, Pa., *A7;* Vandergrift, Pa., *U1;* Washington, Pa., *W2, J2* Baltimore, *E1;* Middletown, O., *A7;* Massillon, O., *R5;* Gary, *U1;* Bridgeville, Pa., *U2;* New Castle, Ind., *I2;* Detroit, *M2.*

Strip; Midland, Pa., *C11;* Waukegan, Cleveland, *A5;* Carnegie, Pa., *S9,* McKeesport, Pa., *F1;* Reading, Pa., *C2;* Washington, Pa., *W2;* W. Leechburg, Pa., *A3,* Bridgeville, Pa., *U2;* Detroit, *M2;* Canton, Massillon, O., *R5;* Harrison, N. J., *D3;* Youngstown, *J3;* Sharon, Pa., *S1;* Butler, Pa., *A7;* Wallingford, Conn., *U3* (plus further conversion extras); *W1* (.25¢ per lb higher); New Bedford, Mass., *R6;* Gary, *U1* (.25¢ per lb higher).

Bar: Baltimore, *A7;* S. Duquesne, Pa., *U1,* Munhall, Pa., *U1;* Reading, Pa., *C2;* Titusville, Pa., *U2;* Washington, Pa., *J2;* McKeesport, Pa., *U1, F1* Bridgeville, Pa., *U2;* Dunkirk, N. Y., *A3;* Massillon, O., *R5,* S. Chicago, *U1;* Syracuse, N. Y., *C11;* Watervliet, N. Y., *A3;* Waukegan, *A5;* Canton, O., *T5, R3;* Ft. Wayne, *I4;* Detroit, *R5;* Gary, *U1;* Owenboro, Ky., *G5;* Bridgeport, Conn., *N8.*

Wire: Waukegan, *A5;* Massillon, O., *R3;* McKeesport, Pa., *F1;* Ft. Wayne, *J4;* Harrison, N. J., *D3;* Baltimore, *A7;* Dunkirk, *A3;* Monessen, *P1;* Syracuse, *C11;* Bridgeville, *U2.*

Structurals: Baltimore, *A7;* Massillon, O., *R3;* Chicago, Ill., *J4;* Watervliet, N. Y., *A3;* Syracuse, *C11;* S. Chicago, *U1.*

Plates: Baltimore, *E1;* Brackenridge, Pa., *A3;* Chicago, *U1;* Munhall, Pa., *U1;* Midland, Pa., *C11;* New Castle, Ind., *I2;* Middletown, *A7;* Washington, Pa., *J2;* Cleveland, Massillon, *R3;* Coatesville, Pa., *C15;* Vandergrift, Pa., *U1;* Gary, *U1.*

Forging billets: Midland, Pa., *C11;* Baltimore, *A7;* Washington, Pa., *J2;* McKeesport, *F1;* Massillon, Canton, O., *R5;* Watervliet, *A3;* Pittsburgh, Chicago, *U1* Syracuse, *C11;* Detroit, *R5;* Munhall, Pa., S. Chicago, *U1;* Owensboro, Ky., *G5;* Bridgeport, Conn., *N8.*

(Effective Aug. 11, 1958)

Experience**—the added alloy in **A-L Stainless, Electrical and Tool Steels

Allegheny Ludlum knows more about stainless than anybody . . . and puts it in print for you

Allegheny Ludlum *should* know more about stainless than anybody: they've been the leading producer of all forms for more than 40 years. And the industry's only that old.

Today, A-L produces more different sizes, shapes, finishes and alloys of stainless than any other company. Backing up its quality products are research and development facilities with people second to none.

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Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa. Address: Dept. A-8.

WSW 7188

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for warehouse delivery of Allegheny Stainless, call RYERSON

Export distribution: AIRCO INTERNATIONAL

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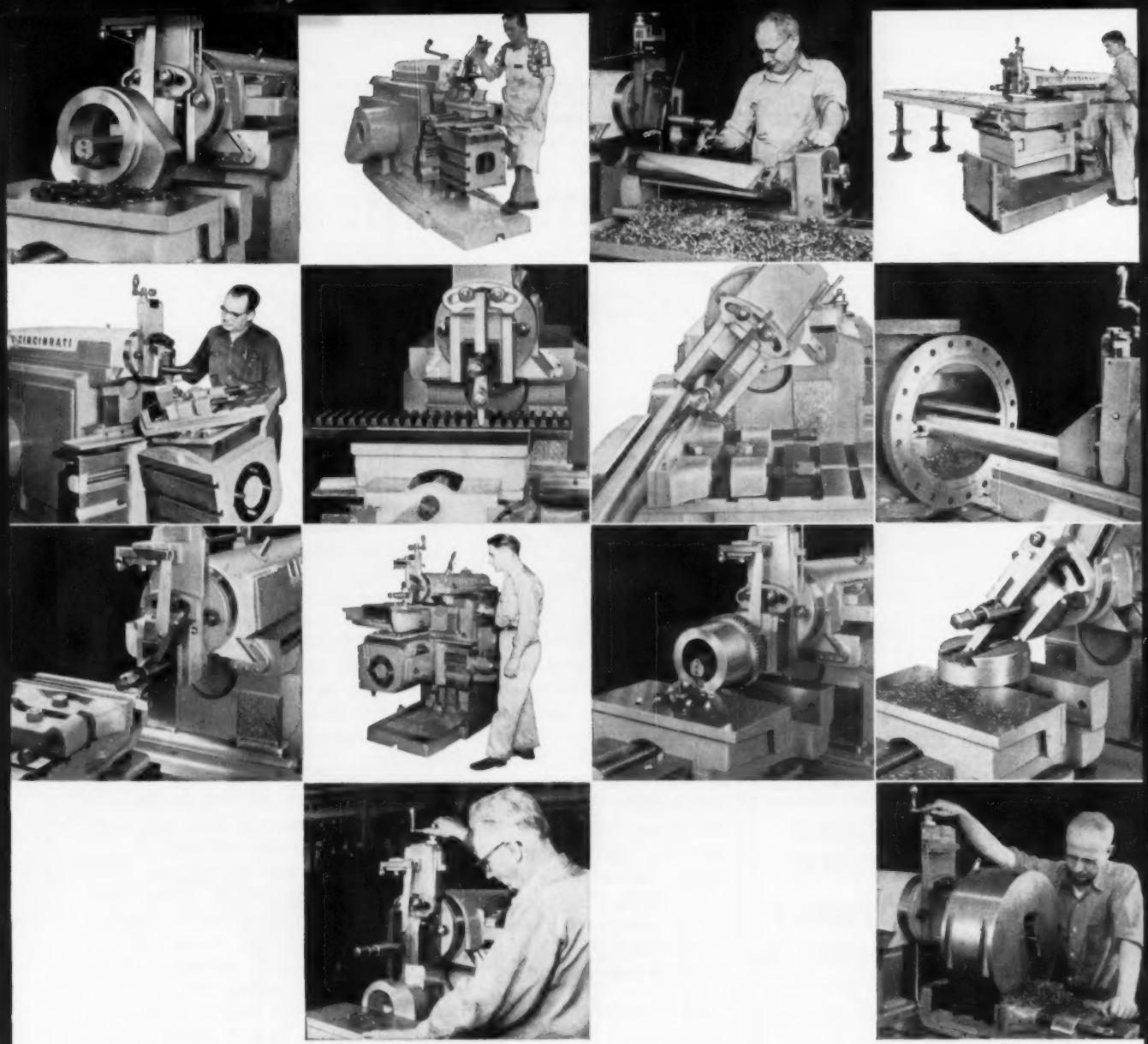

PAYOFF: VERSATILITY

In the tool shop or in your high production bay, the wide-ranging versatility of a Cincinnati Rigid Shaper gives you maximum productivity for your invested dollar. And for each of the many jobs you can do on it, a Cincinnati Rigid Shaper produces something extra – in metal cut per hour, in accuracy, in ease of operation. See for yourself why a new Cincinnati Shaper would pay off for you: write Dept. B, for Catalog N-7, just off the press.

Shapers / Shears / Press Brakes

THE **CINCINNATI SHAPER** CO. Cincinnati 11, Ohio, U.S.A.

THE CLEARING HOUSE

Summer Sales Level Good at Chicago

Used machinery dealers there say business is better than it was this time last year.

Items moving well include heavy production equipment, fabricating machinery, and foreign tools.

▪ July brought more difference of opinion among used machine tool men on whether business was good or bad than any month this year. But it appears that: (1) July business levels ran below June but above last year's July level; (2) machine tool rebuilder backlogs grew during the month and the heavier volume will carry through all of August; (3) tool prices didn't slump much during the period; and (4) heavy production equipment showed more strength than at any time this year.

Knock on Many Doors—Certainly July-August is not the period of "easy sell." A number of important Midwest machine tool firms have enlarged their sales force, are ringing a greater number of doorbells. Several "in-and-outers" who handled used tools when business was good, have closed their doors in the past two months.

Heavy Tools Better—There are some good signs in the July-August picture, but to find them requires probing. For one thing, some excellent orders for heavy equipment, particularly boring mills, heavy lathes, heavy press equipment, and production drilling equipment, have been written. One firm specializing in heavy equipment reports July shipments have been surprisingly heavy. A rebuild shop which slows down seasonally in July, this year chalked up more business than it did in June.

Rebuilders didn't do well in June. But one rehired steadily through the month of July and is on a five-day week in August. They are working at a stronger rate than at any time since May. One finished up an automotive rebuild contract, went on vacation, will come back this week just in time to begin work on a big new missile contract.

Foreign Tools Improve — Rebuilders are, at least for the moment, stepping up their tempo. So is another previously weak segment of the machine tool picture. Dealers carrying lines of foreign tools report they've recaptured some of the business lost during the first half. This is a relatively new development, mainly for drills and mills, and has involved some fairly good sales to tool buyers in the West and Southwest.

Optimism Still Strong — Sheet metal equipment and fabricating equipment are holding up well. They've been leaders in the Chicago area for all of 1958. Light equipment has done some stalling in July, and this is where most of the complaints have originated.

The general dealer-rebuilder outlook is optimistic. Dealers who bid low on automotive tools that were available in late June and early July are now revising their sights upward. They are hitting auctions faster and harder; seem more eager to get their hands on additional equipment.

CONSIDER GOOD USED EQUIPMENT FIRST

BENDING ROLLS
8' x ¾" Bertsch Initial Type
12' x 5/16" Bertsch Initial Type
12' x ⅝' Hilles & Jones Pyramid Type
13' x 3/16" Bertsch Initial Type—NEW
32' x ¾" Baldwin Pyramid Type

CRANES—OVERHEAD ELECTRIC TRAVELING
3 ton P&H 58' Span 220/3/60
5 ton Sheppard Niles 70' Span 230 Volt D.C.
7½ ton Shaw 40' Span 230 Volt D.C.
8 ton P&H 55' Span 220/3/60
10 ton P&H 39' Span 230 Volt D.C.
10 ton Milwaukee 57' Span 230 Volt D.C.
10 ton Shaw 48' Span 230 Volt D.C.
10/3 ton P&H 47' Span 220/3/60 A.C.
10 ton Shaw 120' Span 230 Volt D.C.
15 ton Northern 54' Span 230 Volt D.C.
15 ton Shepard Niles 58' Span 230 Volt D.C.
20/5 ton Whiting 47' Span 220/3/60 A.C.
120 ton Sheppard Niles 77' Span 220/3/60

DRAW BENCHES
3000 lb. Draw Bench, 20 ft. Pull
7000 lb. Draw Bench, 50 ft. Pull—New 1956
10,000 lb. Draw Bench, 50 ft. Draw—LATE

FORGING MACHINES
1" to 5" Acme, Ajax, National

HAMMERS—BOARD DROP—STEAM DROP—STEAM FORGING 800 lb. to 12,000 lb. Incl.

LEVELLERS—ROLLER
37" Torrington, 19 Rolls 1 31/32" dia.
44" Newboldt, 9 Rolls 4 dia.
60" Aetna Standard, 17 Rolls 4⅝" dia.
72" McKay, 15 Rolls 4¼" Dia.

PRESSES—HYDRAULIC
500 ton Watson Stillman Piercing Press 48" x 72"
500 ton HPM Fastraverse, Bed 30" x 30"
600 ton Elmes 36" Stroke, 48 x 45" Bet. Cols.
1000 ton HPM Fastraverse, Bed 48" x 72", 36" Stroke
1500 ton Mesta Steam Hydr. Forging Press

PRESSES—STRAIGHT SIDE
190 ton Toledo #57½, 10" Stroke, Bed 20" x 29"
215 ton Clearing, 24" Stroke, Bed 36" x 42"

PRESS—TOGGLE DRAWING
#168¾ Toledo, 18" Stroke of Blankholder, 26" Stroke of Plunger, Bed 48" x 51"

PUNCH & SHEAR COMBINATIONS
Buffalo #1½ Ironworker
Cleveland Style C; Arch Jaw, Capy. ¾" x ¾"
Cleveland Style EF, Arch Jaw, Capy. 1¼" x 1"

ROLL—CORRUGATING
#5 Stamco, Capy. 16 Ga. Material 12" long 36" wide

ROLLING MILLS
6" x 1" Three Stand Wire Rolling Mill Complete with Pay Off & Recoiler
6" x 5" Torrington Flat Wire Mill Line
8" x 10" Single Stand Two High
10" x 14" Single Stand Two High
10" x 16" Single Stand Two High
12" x 12" Single Stand Two High
12" x 16" Single Stand Two High
16" x 24" Single Stand Two High
20" x 36" Single Stand Two High

ROLL—FORMING
18 Stand Custom Built, 2½ Shaft, will take 36" wide

ROLLS—PLATE STRAIGHTENERS
108" Bertsch, Seven Rolls 9" Dia.
72" Niles 7 Rolls 9" Dia Motor Driven

SHEAR—ALLIGATOR
No. 4 Mesta RH LK, Capacity 2" x 12"

SHEAR—ANGLE
6 x 6 x ⅝" Hilles & Jones

SHEAR LINE
36" x .020 Ga. Hallden Shear Line

SHEARS—SQUARING
6' x 14 Ga. Edwards, Motor Drive—LATE
10' x ¼" Cincinnati
10' x ⅜" Niagara
14 x 3/16" Cincinnati #1814

SLITTERS
24" Blake & Johnson, 3¼" Dia. Arbor
36" Yoder, 4½ Dia. Arbor
92" Mesta Slitting & Trimmer, Capacity 3/16"

STRAIGHTENERS
¼" Lewis 4C with 22 Ft. Cut off
Shuster Shape Straightener, Capy. 1" Hex. Sq. Rd.
Torrington 12-Roll Capy. 1⅜" Sq. Etc.
No. 0 Medart 2 Roll, Capacity ¼"-1⅛" Bars
No. 3 Medart 3 Roll, Capacity to 4½" Tubing

STRANDER
Syncro H81-A 7-Wire Tubular High Speed Strander Cradle Bobbin O.D. Flange 6½", Traverse 3½"

SWAGING MACHINES
#4A Standard 2-Die, Capy. 2¼" Tube
#6½A Fenn Capacity 3⅜ Tube 1¼" Solid
10" Die Length Hydraulic Feed, LATE

THREAD ROLLER
No. 100 Waterbury Farrel Thread Roller

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56 ton No. 304 Bliss, roll key cl., 1942

HYDR.
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250 ton Williams & White, 4 post
150 ton HPM fastraverse, 1946
100 ton HPM hydropower

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600 ton No. 664 Toledo knuckle joint
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10	Calumet	72' 3"
10	Shaw	67' 11"
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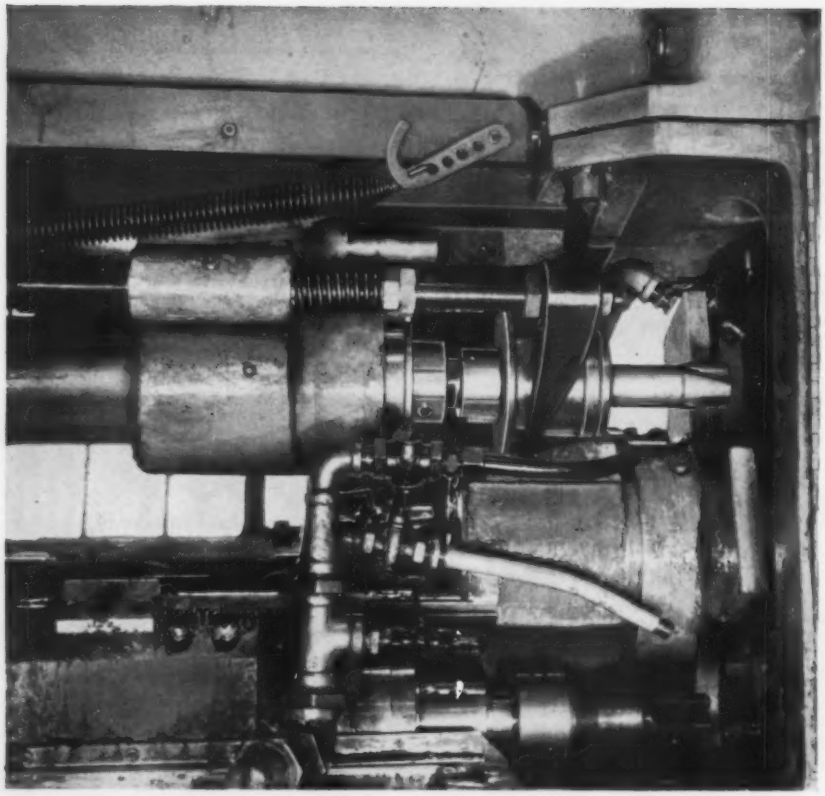

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3000 pieces between grinds at 140 SFM

A LANDIS Collapsible Tap is giving excellent chaser life producing taper threads during high-speed machining runs at the Grabler Manufacturing Co., Cleveland, Ohio.

The 2LL Tap is shown installed on a New Britain Automatic machining 350 malleable iron union bodies per hour. Though threading at the high speed of 140 SFM, 3000 1½" 11½ pitch NPT threads are produced between chaser grinds.

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LL Taps, designed especially for taper threading, can be furnished for rotary or stationary applications from 1-5/16" to 20" in diameter. For more details write for Bulletin G-95.

506

LANDIS *Machine* COMPANY
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CENTRALIZED LUBRICATING SYSTEMS

Make more profit per stamping with Trabon

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That's why manufacturers and operators install Trabon on their presses. A Trabon Centralized Lubricating System delivers the **exact** amount of oil or grease to bearings wherever located. Trabon does this automatically or manually, for hydraulic, mechanical, electric motorized and pneumatic equipment. In this way, Trabon protects expensive bearings, eliminates downtime due to haphazard lubrication, saves lubricant. Be sure to install Trabon on your equipment — soon! You'll reap the benefits immediately!

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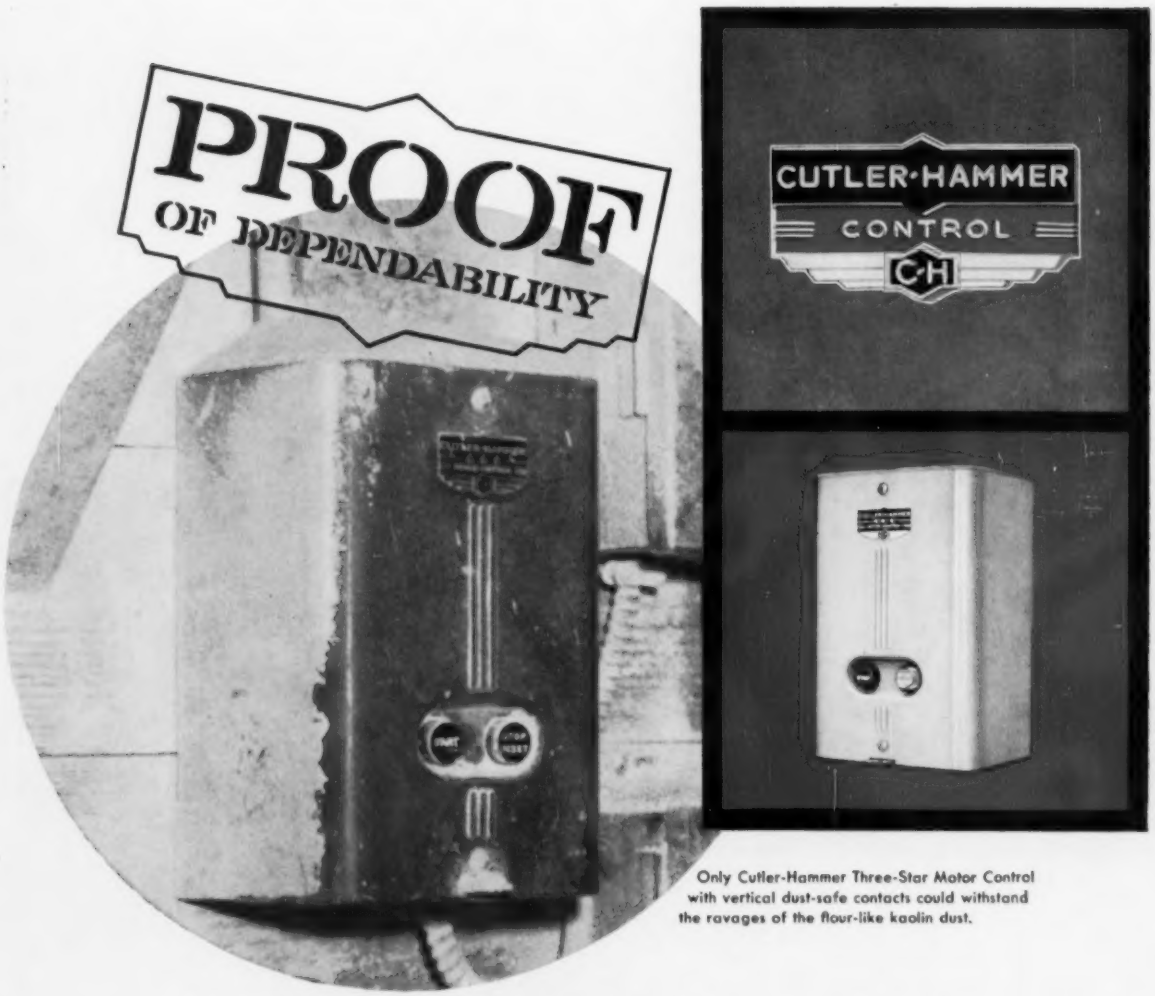

Only Cutler-Hammer Three-Star Motor Control with vertical dust-safe contacts could withstand the ravages of the flour-like kaolin dust.

Large Southern kaolin processing plant cuts maintenance costs with Cutler-Hammer Control

By the very nature of the product, kaolin processing is an extremely dusty operation. Because of this the electrician at a large Southern kaolin plant found it necessary to replace the dust-fouled contacts in the motor starters every 30 to 60 days. Several makes of motor control were tried, but the results were always the same . . . dust laden contacts wore rapidly requiring frequent attention.

Thirteen months ago a Cutler-Hammer Three-Star Magnetic Starter with vertical dust-safe contacts was installed, and the electrician reports perfect operation without a single contact replacement . . . no time lost for repairs.

This is positive proof of dependability . . . proof that Cutler-Hammer Three-Star Motor Control works better, lasts longer than any other on the market today. Why take chances with costly production interruptions? Order dependable Cutler-Hammer Three-Star Motor Control from your nearby Authorized Cutler-Hammer Distributor today. For complete ordering information, write for the Cutler-Hammer Merchandiser, EA-100-Q245. CUTLER-HAMMER Inc., Milwaukee 1, Wisconsin.

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